THE

# AMERICAN GAS-LIGHT JOURNAL

THE OFFICIAL GAZETTE OF

**LIGHT, HEAT, WATER-SUPPLY, AND SEWERAGE.**

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For Engravings, see AMERICAN GAS-LIGHT JOURNAL for June, 1860, page 245. Address the Patentee, JOHN P. KENNEDY, Trenton, N. J.

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## MISCELLANEOUS.

**COAL-LANDS AT PUBLIC AUC-**TION. In pursuance of a decree rendered in the Kanawha Circuit Court, at the special term, held in January, 1861, the undersigned, as Special Commissioner, will offer for sale at PUBLIC AUCTION to the highest bidder, in front of the Court House door of Kanawha County, Virginia, on TUESDAY, the 16th April, next, a certain tract of land belonging to the Coal River and Kanawha Mining and Manufacturing Company, estimated to contain 4,000 ACRES (excepting therefrom 44 acres in dispute, and the surface interest in 269 acres of the said 4,000 acre tract). The said lands abound in CANNEL, SPLINT, and BITUMINOUS COAL; are situated in Kanawha County, Va., on Briar Creek and the navigable waters of Coal River. TERMS OF SALE, five per cent of the purchase money in cash on the day of sale, and the residue thereof in three equal annual instalments, with interest thereon from day of sale, the purchaser giving bonds, with approved security, and a lien retained on the lands for the deferred payments.

THOMAS L. BROUN, Special Commissioner.

February 14, 1861.

**TO THE CREDITORS OF THE** NORTH AMERICAN GAS-LIGHT CO.—The Receiver of this Company gives notice to such of the creditors of this Company as have not presented their claims, to present the same to him, at his office, No. 20, Nassau street, New York, on or before the 1st of April, next.—Dated Feb. 16, 1861. PHILO T RUGGLES, Receiver.

**HARRIS LOUDERBACK** FIRE-BRICK LAYER

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No. 1005 Clement St., Philadelphia.

**GAS WORKS AT ASTORIA, N. Y.** FOR SALE.—The Astoria Gas Company will sell on Wednesday next, 6th March, at 12 o'clock noon, at the Merchants' Exchange, in the city of New York, their entire works, situated on the East River with valuable water front. The sale will be positive to the highest bidder, and will include valuable village contracts and privileges for a long term of years, and will afford an unusual opportunity for a profitable investment. For terms and other information apply to

C. R. TRAFFORD, at Astoria, N. Y., or

J. J. HALSEY, 55 Cedar street, New York.

Astoria, N. Y., Feb. 23, 1861.

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## TWENTY-SIXTH ANNUAL REPORT OF THE TRUSTEES OF THE PHILADELPHIA, PA., GAS-WORKS.

JANUARY, 1861.

*To the Select and Common Councils of the City of Philadelphia.*

The Trustees of the Philadelphia Gas Works, in accordance with an ordinance of Councils, present their Twenty-sixth Annual Report.

THE QUANTITY OF GAS produced at their several factories, in the year 1860, was 639,578,000 cubic feet, being an increase over the previous year of 77,468,000 cubic feet.

THE WHOLE QUANTITY that has been made under the Trust, from its commencement, is over forty-eight hundred and eighty million cubic feet.

THE LARGEST CONSUMPTION, in 24 hours, was 2,828,000 cubic feet, on the 21st of December, 1860.

| | |
|---|---|
| THE TOTAL AMOUNT RECEIVED for gas, coke, &c., was | $1,238 447 41 |
| Service pipes and street mains, | 25.075 06 |
| City warrants on hand, January 1st, 1860, | 18.322 34 |
| Amount of Loans sold, which completes the sale of Loan No. 10, | 115 200 00 |
| Interest on city loan, held for sinking fund, | 17,810 00 |
| City loans redeemed, | 6,600 00 |
| Interest on sinking funds of Southwark, Germantown, Manayunk, and Richmond Gas Works, | 294 00 |

THE EXPENDITURES have been as follows:—

| | |
|---|---|
| For the manufacture of gas, | $610,611 17 |
| Interest on Gas Loans, | 60,826 18 |
| Sinking Fund for the year, | 126,683 75 |
| Repairs, | 121,794 73 |
| Enlargement of Works, | 82.698 86 |
| Extension of street mains, | 139,632 82 |
| Service pipes and meters, | 104,799 38 |
| Incidental expenses, including wages of Meter Inspectors, salaries of officers and clerks, | 139.035 48 |
| Amount paid City Treasurer for Interest on Loans 9 and 10, and sinking fund of Loan 10, | 67,604 00 |
| City Treasurer, for interest on and appropriation for $450,000 city debt, for Spring Garden, West Philadelphia, Moyamensing, and Frankford Gas Works, | 36,000 00 |
| Interest on Gas Stocks, | 19,028 80 |
| Investments of Sinking Funds of Southwark Germantown, Manayunk, and Richmond Gas Works, | 5,048 30 |
| Brokerage on City Loans purchased, | 134 93 |

THE ITEM OF REPAIRS, you will observe, is large, and to be accounted for by the necessary expenditure to repair mains, many of which were injured by culverts: and others, in the works purchased of various corporations by the city, were found to be so badly jointed, that it was necessary entirely to replace them.

The hurricane of February last, which almost demolished our new Retort House, compelled us to re-erect it, which has been done, and every precaution taken to prevent a like accident, by additional braces and fastenings to strengthen and support it.

The loan for $125,000, created under an ordinance of Councils, passed June 3d, 1841, entitled "An Ordinance providing for the issue of certificates of loan to holders of stock of the Philadelphia Gas Works," will fall due March 1st, 1861. This is the first of the Gas Loans maturing, and will be promptly paid out of the sinking fund accumulated for that purpose.

The total amount to the credit of the sinking fund, on the 1st instant, was $1, 230,420 70, of which there is at present invested $1,175,649 55, which is composed entirely of city and gas loans.

The manufacturing of gas is still continued at the Manayunk Works but it is the intention of the trustees, in consequence of higher cost, to discontinue it, as soon as the works, now constructed, shall be in full operation.

THE LENGTH OF STREET MAINS laid during the year has been 232,491 feet, making the entire length of mains belonging to the Trust, 2,023,363 feet, or 383 miles.

The application for street mains, services, and meters continued active, until the severity of the weather compelled us to suspend our labor. For a more extended statement of the operations of the DISTRIBUTION DEPARTMENT, you are respectfully referred to the Engineer's Report, (hereunto annexed,) which this year enters fully into a detailed statement of the various interests committed to his care.

The great increase of both mains and and consumers the past three years, without any material enlargement of the capacity for storage, has engaged the attention of the trustees, and it has been thought proper, in order to equalize both the pressure and supply, to erect two gasholders, one in the northern and the other in the southern part of our city, which being filled during the day, will afford a more regular supply of gas, and will obviate the necessity of the great pressure which is now requisite to drive the gas to the distant points of consumption.

Proper measures have been taken to procure suitable sites, and the work of erecting them will be commenced as soon as the weather will permit.

The Trustees would respectfully call your attention to the propriety of giving them such additional legislation as will more fully empower them to protect the property confided to their care.

The Report of the Cashier, giving a full statement of the financial position of the Trust, is likewise annexed, to which your attention is invited.

In conclusion, the Trustees would congratulate Councils on the prosperous condition of the Trust, which they believe is, in a great degree, to be attributed to the ability, energy, and integrity of its chief executive officers, under their employ.

EDWARD H. TROTTER,
*President.*

Attest:

JOHN P. MURTA, *Registrar.*

January 25th, 1861.

## ENGINEER'S REPORT.

*To the Trustees of the Philadelphia Gas Works:*

The undersigned has the honor to lay before the Board of Trustees his Twenty fifth Annual Report of the condition of the works confided to his care, and the results of their operation during the year just closed.

PRODUCT FOR 1860.

The several factories belonging to the Trust have produced, in the year 1860—639,578,000 cubic feet of gas; of which 231,617,000 cubic feet were made at the works in First ward, 276,018,000 in Ninth ward, 124,761,000 in Fifteenth ward, and 7,182,000 at the works in Twenty-first ward.

THE WHOLE QUANTITY that has been made under the Trust, from its commencement, is over forty eight hundred and eighty millions cubic feet, or in exact figures, 4,880,050,400 cubic feet.

THE LARGEST CONSUMPTION in 24 hours was 2,828,000 cubic feet, on the 21st of December, 1860.

THE MATERIALS used in making gas are, as shown, in the annexed tabular statement:

| | Tons. |
|---|---|
| COAL IN STORE, January 1st, 1860, | 13,891 |
| " bought, | 63,764 |
| | 77,655 |

| | Tons. |
|---|---|
| COAL CARBONIZED in 1860, | 64,735 |
| " in store, January 1st, 1861, | 12 920 |
| | 77,655 |

| | Bushels. |
|---|---|
| COKE ON HAND, January 1st, 1860, | 16,670 |
| " made in 1860, | 2,302,421 |
| | 2,319,091 |

| | Bushels. |
|---|---|
| COKE used under retorts in 1860, | 1,372,160 |
| " " offices, yards, &c., | 51,987 |
| " sold, | 816,941 |
| " on hand, January 1st, 1861, | 78 00 |
| | 2,319,091 |

There has also been used 2,475 cords of wood, and 30 tons of other carbonaceous materials, chiefly resins and refuse oils, and 154.222 bushels of lime in purifiers.

RETORTS.

The maximum number of retorts continuously in use at the Works, in First ward, was 153; in Ninth ward, 225; in Fifteenth ward, 108; and in 21st ward, 9. The average being in the First ward 113, in the Ninth ward 157, in the Fifteenth ward 79, and in the Twenty-first ward 6.

METERS AND SERVICES.

The number of meters and service pipes put in at new places, has been,

| | |
|---|---|
| In the wards comprising the old city, | 686 |
| " " Spring Garden and Penn., | 929 |
| " " Moyamensing, | 427 |
| " " Southwark, | 455 |
| " " Richmond, | 140 |
| " " Kensington, | 512 |
| In the Twenty-first ward, | 95 |
| " Twenty-second ward, | 178 |
| " Twenty-third ward, | 57 |
| " Twenty-fourth ward, | 159 |
| In all, | 3,533 |

Making a total of meters and services set during the year 1860, 3,533; adding those reported last year, makes the whole number of meters now in use 39,844, and 39,959 services.

APPLICATIONS.

The number of applications registered during the year has been:

| | |
|---|---|
| At Seventh street office, | 6,931 |
| " Spring Garden Gas Office, | 2,984 |
| " Twenty-first ward office, | 146 |
| " Twenty-second ward office, | 813 |
| " Twenty third ward office, | 141 |
| " Twenty-fourth ward office, | 361 |
| In all, | 10.876 |

Deducting from these the removals and discontinuances, amounting to 7,256, and adding the number of previous consumers, shows the whole number of gas consumers, at the present time, on the books of the Trust, to be 41,200.

LIGHTS.

The lights added during the year are as follows:

| | |
|---|---|
| Old City, | 10,306 |
| Spring Garden and Penn., | 10.748 |
| Southwark, | 3,060 |
| Moyamensing, | 2,606 |
| Richmond, | 1,325 |
| Kensington, | 4,115 |
| Twenty-first ward, | 1 110 |
| Twenty-second ward, | 2,728 |
| Twenty-third ward, | 878 |
| Twenty-fourth ward, | 1,858 |
| Previously in use, | 436,227 |
| Total, | 474,961 |

THE NUMBER OF PUBLIC LAMPS now in use in the wards, supplied from these works, is 5,484.

STREET MAINS.

The length of street mains laid during the year has been 232,498 feet, making the entire length of mains belonging to the Trust, 2,023,363 feet, or 383 miles.

The applications for farther extensions of street mains, and for additional services and meters, so active in the autumn of the previous year, continued without perceptible abatement, either in their number or urgency.

To meet the wants of these numerous applicants, the work in the department of distribution was bugun early in the spring, and pushed forward by the superintendent

Mr. Mickey, with his usual energy, until it was brought to a close by the exhaustion of the loan authorized for this object.

This suspension of operations, before half the season had elapsed, brought disappointment to a large number of citizens who were anxious to have the advantages of gas light extended to the localities in which they were expending large amounts in the erection of new buildings. As soon as possible after the passage of the ordinances of Councils, authorizing farther expenditure for these objects, the work was resumed and continued with great activity to the close of the year.

Within the last three years, the extent of street mains, added to our means of distribution, has amounted to 168 miles, and the increase of consumers to nearly 12,000, all of whom have been supplied without any material enlargement of the capacity for storage, or addition to the principal conduits through which the supply of gas is conveyed from the factories to the pipes of distribution. To meet the exigency it has become necessary to increase the storage room, and make further arrangements for maintaining a due equality of pressure and of supply over the rapidly expanding territory, now drawing its supply from the City Works. Both of these important objects can be accomplished by placing the new gasholders, the construction of which has been recently authorized, in localities selected as most suitable centres of distribution for the remote sections.

Proper steps have been taken to procure the requisite sites for these gasholders, and as soon as they have been obtained, the work of construction will be commenced.

### THE NEW RETORT HOUSE.

The new retort house in the First ward, which was partially demolished before it was entirely completed, during a violent gale on the 10th of February, has been repaired and finished upon the original plan, with the addition of a series of diagonal iron tie rods and transverse girders, that will effectually secure the building from a repetition of the disaster. An examination of the fractured portions afforded evidence of the occurrence of lateral vibrations, such as buildings of great length, covered with iron roofs, are peculiarly subject to; when exposed to heavy winds. This vibratory motion, acting upon masonry that was but freshly laid, of which the mortar was yet soft and possibly somewhat injured by the winter frosts, was, without doubt, the principal cause of the accident.

It has been deemed right to charge the cost of restoring the damaged structure to the repair account of the year: and this item, together with extensive repairs needed by the street mains and meters received from gas companies in some of the outer wards has swelled that account above its usual dimensions.

### WHICH ARE THE BEST RETORTS—IRON OR CLAY?

Prominent among the many questions that engage the attention of the gas engineer, are those of the material and form of *retorts*. Iron, both cast and wrought, and fire clay, either made into bricks or moulded, while plastic, into the full size and shape of the retort, are the materials in common use. Each have had their advocates, and each can be shown to be better than any of its rivals by certificates of undoubted authority and undoubting positiveness.

Experiments on these materials were begun at our Works in 1838, and have been repeated from time to time, whenever some alleged improvement made such trials expedient. Recently the growing interest in the subject has led to a more extensive series of trials than any before attempted. The number of retorts used in these experiments is nearly one hundred, supplied by different makers, both American and foreign. Thus far they have not yielded results as economical as we usually obtain from plain cast iron, but the trials are not considered to be entirely conclusive, and they will therefore be continued with other retorts of different forms of American manufacture, some of which appear to be of better quality than those before used. Daily records are kept of all the details of these experiments, and the facts thus accumulated, will, upon the completion of these experiments, afford sufficient data for a correct judgment upon the subject.

### GAS-MAKING MATERIALS.

The trials of various processes for making gas from different materials, alluded to in my last two Annual Reports, were repeated during the early months of the present year, and were exhibited in operation to the Gas Committee of Councils, by whom a report to that body was made in April last, giving a description of the results witnessed by the Committee, and a summary of the general results during many months, derived from the official records of the Works.

The important official character of this Report, made by members of the City Councils, of well known probity and intelligence, in response to a resolution of the Councils, entitles it to a high degree of confidence, and I have therefore embodied it here, in preference to any statements of my own. The resolution of Councils embraced two subjects of inquiry: one relating to Water-Gas, and the other to complaints relative to a supposed increase of the amount of bills for gas used by private consumers.

The prevalence of this supposition seems to have been sedulously fostered by certain interested parties whose excess of zeal was manifested by a newspaper advertisement as follows:

NOTICE TO GAS CONSUMERS

Persons whose bills for gas have been increased, without their having used a greater quantity of light than previously, will please to send a statement, with particulars of the same, to Post Office box 752.—*Public Ledger, April 13th*, 1860.

As both these subjects were carefully examined by the Gas Committee, their reports on both are inserted.

## REPORT OF THE COMMITTEE ON GAS-WORKS.

*To the Select and Common Councils of the City of Philadelphia.*

The Committee on Gas-Works, to whom were referred the following resolutions, viz:

*Resolved, by the Select and Common Councils of the City of Philadelphia*, That the Committee on Gas-Works be instructed to inquire and report whether the manufacture of gas from any materials other than those now in use at the Philadelphia Gas-Works, is practicable; and if so, whether such gas can be manufactured at a cheaper rate than is now charged, and if so, at what rate; and whether such gas gives an equal or greater degree of light than that manufactured from coal; and if thought practicable, what cost will be incurred in change of apparatus, etc., and any other information relative to the subject which they may deem important.

*Resolved*, That they be further instructed to inquire and report from what cause (if it can be ascertained) the bills of consumers of gas have been, of late, so largely increased: whether from defective meters, or from inferior quality of gas furnished, or from other causes.

*Resolved*, That the Commitee be instructed to report at as early a day as convenient.—

RESPECTFULLY REPORT

That, in reference to the first resolution, the Committee are not, as yet, prepared to report.

In pursuance of the second resolution, directing inquiry into the cause of the recent increase in the amount of gas bills, it seemed right for the Committee first to ascertain whether the increase referred to had any existence in fact.

For this purpose, a statement has been compiled from the bill books of the gas offices, exhibiting all the bills issued in the months of December, January, and February, during four successive years, to all consumers, who, for that time, have continued to use gas in the same premises, in the wards comprising the old City proper, Moyamensing, Spring Garden, Penn Township, and West Philadelphia.

This statement comprises the bills of 11,114 consumers, to whom more than 44,000 bills were issued during the four winters.

It appears that the bills of 3,259 of the consumers, or not quite one-third, are higher in the last winter than in those of the three previous years, and the bills of 7,855, or rather more than two-thirds, are not higher than those for previous years.

The aggregate amount of all the bills to these consumers was, in the winter of

| | |
|---|---|
| 1856–7, | $38,177 70 |
| 1857–8, | 125,762 24 |
| 1858–9, | 137,923 36 |
| 1859–60, | 141,368 54 |

the increase of 1859–60 over 1856–7 being $3,190 84, or about 2½ per cent.

The reports of the Inspectors of Fittings show that in the interval between 1856 and 1859, the number of additional lights, put on by the consumers included in the foregoing statements, is 8,300, or about 6 per cent. increase of lights, if these customers are supposed to have in use the average number of lights, which is shown, by the published reports, to be 12 to each consumer.

From this, it appears that the amount of gas used has not increased as much as the number of lights in use; and a similar result is exhibited by comparing the whole quantity of gas sold in the year with the whole number of lights in use at the beginning of the year. For example, the number of lights reported to Councils, as in use in January, 1856, was 300,406, and the cubic feet of gas sold in that year was 415,888,950, being 1,384 feet to each light. The lights reported in use in January, 1859, was 378,462, and the cubic feet of gas sold in that year was 494,128,345, being 1,305 feet to each light, or 5½ per cent. less than before.

These comparisons have been carried back so as to include four years, in order to avoid the erroneous conclusions which would result from taking only the past two years, which included a period of commercial depression, the effects of which are very marked upon the consumption of gas by certain classes of consumers, among whom the various manufacturers present very conspicuous examples; while among other classes not thus affected by business, the quantity of gas consumed has been curiously regular, sometimes the bills for three or four successive winters not materially varying in amount, and in thousands of instances not differing so much as one dollar for several years. The aggregate amount of the bills for the periods of commercial distress, and also the average consumption per light in use, are shown to be diminished in a remarkable degree, and give strong confirmation to the other proofs elicited by this laborious investigation, of the carefulness and accuracy with which the books and accounts of the City Gas Trust are kept.

The table of annual consumption per light, compiled from the published reports to Councils, show the average amount of gas used per light to be less in 1859 than in any other of the eighteen years elapsed since the City has owned the Gas Works, except 1857 and 1858, when the consumption was so much reduced by the suspension of business.

In addition to the statements exhibiting the foregoing facts, relating only to consumers who have been supplied during four successive years, two others have been prepared, embracing all those consumers who have used gas during the last two winters in Southwark and Kensington.

These comprise two bills for each of 3,408 consumers, amounting to 6,816 bills, and make an aggregate of more than 50,000 bills, whose amounts, making a total of $543,231 84, have been examined and compared in this investigation.

In the first-named district, the gas was derived from the City Works during both winters; but in the former season, received only an inadequate supply, in consequence of the imperfect communication between the local main of the Southwark Gas Company, and those of the City, from which the supply was drawn, which defects were removed in the summer 1859.

The aggregate of the bills here, on the 1st of March, 1859, was - - - - - - - - $10,652 79
and in March, 1860, was - - - - 11,683 24
the increase being $1,030 45, or not quite 10 per cent.

In Kensington, the bills rendered by the Northern Liberties Gas Company, on the 1st of April, 1859, amounted to $12,573 42; and those by the City Gas-Works, to the same consumers for the corresponding period in 1860, amount to $10,224 74, the former amount being greater by $2,348 68, or 22 per cent. over the latter.

Part of this gain to the people of Kensington results from the lower price now paid per one thousand cubic feet; but the books show that nearly one-half of it is in the saving of gas consumed, which is nearly 10 per cent. less since their supply from the City Works. It is proper to remark, in this connection, that the saving to the City of cost of gas for public lighting, by the purchase of the Kensington Gas-Works, is about $5,000 a year; while the quantity of light in the streets is generally greater since the change in the source of supply.

In Southwark, out of 1,618 bills rendered, 1,029 were larger in 1860 than in 1859, and 589 were not larger.

In Kensington, out of 1,790 bills rendered, 378 bills were larger in 1860 than in 1859, and 1,412 were not larger.

The unavoidable conclusion to which the Committee has arrived, after a careful consideration of the foregoing facts, is that there has been no general increase in the amount of gas bills, nor any local increase that is not evidently the result of an increased facility of supply; and, moreover, that an examination of the accounts of the many thousands of gas consumers, kept in the offices of the City Gas Trust, will satisfy every unbiassed mind as to the regularity and reliability of the records of consumption given by the instruments used for the measurement of gas.

The voluminous statements compiled from the bill books for the use of the Committee are kept open to the inspection of any member of Councils, and indeed of any citizen, who may desire to examine them, and thus form his own judgment as to the accuracy of the statistics that have been derived from their critical analysis.*

WM. ROTCH WISTER, *Chairm'n.*
WILSON KERR, CHARLES T. JONES,
J. E. ELDRIDGE, WM. BRADFORD,
GEORGE READ, O. H. P. PARKER,
STEPHEN BENTON,
*Committee on Gas-Works*

*Philadelphia, April 19th*, 1860.

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## REPORT OF THE COMMITTEE ON GAS-WORKS.

*To the Select and Common Councils of the City of Philadelphia.*

GENTLEMEN:—The Committee on Gas-Works, to whom were referred the following resolutions, viz:

*Resolved by the Select and Common Councils of the City of Philadelphia*, That the Committee on Gas-Works be instructed to inquire and report whether the manufacture of gas from any materials other than those now in use at the Philadelphia Gas-Works is practicable, and if so, whether such gas can be manufactured at a cheaper rate than is now charged, and if so, at what rates, and whether such gas gives an equal or greater degree of light than that manufactured from coal, and if thought practicable, what cost be incurred in change of apparatus, &c., and any other information relative to the subject which they may deem important.

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* A more detailed statement of these bills will be found in a recapitulation below.—ED.

*Resolved*, That they be further instructed to inquire and report from what cause (if it can be ascertained) the bills of consumers of gas have been, of late so largely increased; whether from defective meters, or from inferior quality of gas furnished, or from other causes.

*Resolved*, That the Committee be instructed to report at as early a day as convenient.—

RESPECTFULLY REPORT,

That having, at the last meeting of Councils, reported in part, they now present the result of their further deliberations on the subjects committed to them.

In pursuance of the first resolution, they have examined into the details of the apparatus and processes used in producing three different kinds of gas.

The *first* is the gas obtained from the distillation of bituminous coals, in the manner now practiced in most of the large gas-works, in this or other countries.

The *second* is the gas obtained from the distillation of wood, in an apparatus, in use in some European cities, and also in certain towns in the southern part of the United States, and which has been in constant use for several years past in part of the City Gas-Works.

The *third* is the gas produced from distillation of rosin, or some other hydro-carbon, in conjunction with the vapor of water, and hence called "Water Gas," which has lately, for some weeks, been manufactured at the Northern Liberties Gas-Works.

These several processes, in actual operation, have been inspected by the Committee, at the City Works, and it was made evident that each can produce illuminating gas of excellent quality, and that the choice between them must therefore depend on their relative economy, convenience, and certainty.

So far as the committee have been able to ascertain, by an inspection of the carbonizing accounts, it appears that, with the prices now prevailing here for coal, wood, rosin, lime, iron, and labor, the cost of gas produced from wood is the lowest, and that from rosin and steam the highest of the three kinds.

It may be well to observe here, however, that in view of the present limited supply of a proper article of pine wood, it would, in the opinion of your Committee, be inexpedient to rely on this material for any considerable portion of the gas required; and it should be further remarked, that the difference in cost of the three methods of manufacture depends, in some degree, upon the price of materials and labor, and does not seem to be so great that it might not be materially changed, or even reversed in the future.

Your Committee have been in communication with parties interested in the process for making the steam and rosin gas, who express great confidenee in their ability to demonstrate its practicability and superior economy, and who, in proof of their own confidence in the process have made a proposition to put their gas into the gasholders of the City Works at a price which no doubt, seems exceedingly cheap to persons not practically familiar with the business of making and distributing gas, but is shown, in the accounts of the Gas-Works, to be not lower than the cost of coal gas, at the same stage of manufacture.

As the subject of cheapening the cost of gas-light is of much interest to the whole community, all proper encouragement and careful examination should be given to every attempt to accomplish it, and your Committee have learned, with pleasure, that the trustees of the City Works, to whom properly belongs the consideration of such matters, have appointed a special Committee, with authority to make such investigation as will enable them to report fully upon the subject, and who are prepared to take immediate action in the premises.

Your committee very much regret that the near expiration of the period of their official year will prevent further examination into this subject, which is one of vital importance to every citizen; but they can not close this part of their report without adding that, in their opinion, no change could as yet be advantageously made in the materials for the manufacture of gas by the Philadelphia Gas-Works.

In conclusion, your Committee offer the following resolution, and ask its adoption.

WM. ROTCH WISTER, *Chair'n.*

J. E. ELDRIDGE, CHAS. T. JONES,
O. H. P. PARKER, S. SNYDER LEIDY,
WM. BRADFORD, GEORGE READ,
WILSON KERR, SEPHEN BENTON,
GEORGE R. OAT.

*Committee on Gas-Works.*

*April 26th*, 1860.

RESOLUTION.

*Resolved*, That the Committee be discharged from the further consideration of the subjects contained in the foregoing resolutions.

## SUMMARY,

Showing the proportion of Bills in the last Winter, that are greater or less, or identical with those of previous years.

| | GREATER. | LESS. | IDENTICAL. | TOTAL. |
|---|---|---|---|---|
| Old City Proper | 1,979 | 4,550 | 851 | 7,380 |
| Spring Garden | 1,070 | 1,401 | 491 | 2,962 |
| Moyamensing | 164 | 331 | 101 | 596 |
| West Philadelphia | 46 | 101 | 29 | 176 |
| Total | 3,259 | 6,383 | 1,472 | 11,114 |

*Number of Instances of Identical Bills in the four years.*

| | 2 *Bills.* | 3 *Bills.* | 4 *Bills.* |
|---|---|---|---|
| Old City Proper | 1,559 | 88 | 43 |
| Spring Garden | 822 | 55 | 39 |
| Moyamensing | 169 | 9 | 13 |
| West Philadelphia | 45 | 5 | 2 |
| Total | 2,595 | 157 | 97 |

| YEAR. | LIGHTS IN USE JAN. 1. | GAS SOLD DURING THE YEAR. | CUBIC FEET PER LIGHT. |
|---|---|---|---|
| 1842 | 24,996 | 49,888,830 | 1,995 |
| 1843 | 28,080 | 47,565,751 | 1,693 |
| 1844 | 31,557 | 53,631,156 | 1,699 |
| 1845 | 36,652 | 54,076,598 | 1 746 |
| 1846 | 42,558 | 74,547,300 | 1,751 |
| 1847 | 50,792 | 89,700,993 | 1,766 |
| 1848 | 66,822 | 105,663,050 | 1,581 |
| 1849 | 84,623 | 134,003,850 | 1,583 |
| 1850 | 110,591 | 181,267,500 | 1,639 |
| 1851 | 129,027 | 195,212,325 | 1,517 |
| 1852 | 143,441 | 209,574,250 | 1,461 |
| 1853 | 168,381 | 248,120,995 | 1,473 |
| 1854 | 200,848 | 279,307,174 | 1,340 |
| 1855 | 222,989 | 293.800,915 | 1,313 |
| 1856 | 300,406 | 415,888,950 | 1,384 |
| 1857 | 338.592 | 432,052,884 | 1,276 |
| 1858 | 357,729 | 444,631,979 | 1,242 |
| 1859 | 378,462 | 494,123,345 | 1,305 |

## RECAPITULATION.

CITY.

*First Section.*—North of the North side of Market street, from Delaware to Schuylkill.

| | 1857. | 1858. | 1859. | 1860. |
|---|---|---|---|---|
| Due February 1, | $34,115 70 | $30,262 73 | $34,286 45 | $34,516 75 |

*Second Section.*—From North side of Market street to South side of Walnut street, (inclusive,) from Delaware to Schuylkill rivers.

| | 1856. | 1857. | 1858. | 1859. |
|---|---|---|---|---|
| Due December 1, | $29,554 60 | $26,319 92 | $28,617 36 | $30,253 20 |

*Third Section.*—South of the South side of Walnut street to South street, (inclusive,) from Delaware to Schuylkill rivers.

| | 1857. | 1858. | 1859. | 1860. |
|---|---|---|---|---|
| Due January 1, | $31,506 77 | $29,674 85 | $32,487 00 | $32,040 10 |

*Monthlies.*—From Vine street to South street, (inclusive,) from Delaware to Schuylkill rivers.

| | 1856–7. | 1857–8. | 1858–9. | 1859–60. |
|---|---|---|---|---|
| Due Dec. 1 | 4,483 64 | 4,107 41 | 4,729 48 | 4,670 58 |
| Jan. 1 | 4 438 14 | 4 882 41 | 4,728 81 | 4 849 50 |
| Feb. 1 | 5,380 71 | 4,245 81 | 4,446 30 | 4,690 25 |
| Total | $14,302 49 | $13,235 63 | $13 904 59 | $14,210 33 |

WATER-GAS.

During the public controversy, carried on for some months, respecting one of these processes, namely, the so-called water gas, there was an evident misapprehension as to the degree of novelty attached to the subject: many persons believed it to be entirely new, and hence failed to understand, correctly, the merits of the case.

I have, therefore, compiled from authentic sources, a brief sketch of the leading facts of the history of the successive attempts to devise and introduce this process.

The earliest patent for the combination of water or steam with a hydro carbon for the production of illuminating gas, that has come to my knowledge, was granted in England in the year 1823, to William Vere and Henry S. Crane, for "the application or admission of a continued stream of water or a continued current of steam, produced by the evaporation of water into the retort or other vessel, in which tar, or oil, or coal, or *other suitable material* is under process of decomposition for the purpose of producing inflamable gas."

These words, of the "claim," and also the detailed description of the apparatus and process, covered the exclusive right to manufacture illuminating gas by means of water or steam, mixed with a hydro-carbon, before either undergoes decomposition. The idea of mixing the steam and hydro carbon before decomposition has been repeatedly proposed and patented since the date of this early patent; but neither at that time nor since has it been extensively applied in practical art, nor has it given results that have offered encouragement as to its permanent success. The subject was soon abandoned, and does not appear to have again attracted attention for a term of ten years. In 1833 an extensive series of experiments upon the use of water in making illuminating gas was carried on by M. Jobard, Director of the Royal Museum of Industry, at Brussels. They were investigated by a Commission from the Royal Academy of Belgium, and pronounced highly successful.

Prior to any publication of his invention, it was sold by Jobard to MM. Selligue and Tripier, in Paris, with a condition that the claim of the former to the honor of its discovery should be kept secret, and Selligue be proclaimed its originator. The latter, in that assumed character, received gold medals from the Paris "Society of Encouragement" and the "Academie de l'Industrie." The process was introduced into several countries as the invention of Selligue.

It was patented in England in 1834, by J. A. P. de Val Marino; tried in Ireland, by Mr. Kelly; in Austria, by M. Offenheim, who endeavored to effect a sale of it to its real inventor, Jobard; and it was put into actual operation on a practical scale for public use at the towns of Dijon, Strasburg, and Antwerp, and in two fauxbourgs of Paris and Lyons, under the direction of its reputed author.

So complete was its apparent success, and so great the influence of Selligue, that it maintained its credit, notwithstanding the alleged opposition of powerful gas companies; and a proposal was brought forward in the French Academy of Sciences for the award of their valuable gold medal to M. Selligue for his "splendid invention," with a recommendation that the Cross of the Legion of Honor should be conferred upon him.

According to the "explanations" presented to the "Academy" on this occasion, Selligue was able to obtain 55 cubic feet of highly brilliant gas from each pound of resinous or mineral oil, capable of yielding in the ordinary way, without combination with steam, only 7 feet as a maximum. And also, that over 80 feet of gas, to the pound of such oil, had been obtained on one extensive trial, and 100 feet to the pound on another occasion.

The matter was referred to a commission or jury of the Academy, composed of such eminent savans as Thenard, Gay Lussac, Brongniart, Darcet, Dumas, and Payen.

Under their investigations the bubble was exploded, the candidate for the honors of the French Academy was discovered to be an imposter, and his grand invention sunk into oblivion, as soon as it was deprived of the industrious advocacy of its unscrupulous promoter, who, from 1834 to 1839, succeeded in sustaining his standing and credit during five years of continuous false pretences.

The principles involved in Jobard's system differed from those of Vere and Crane's patent, by providing for the decomposition of the water before mixing it with the hydro-carbon, and decomposing the latter after mixture with hydrogen in a retort containing coke kept at a high heat. An interesting account of Jobards's and Selligue's scheme is to be found in the Bulletin du Musee d'Industrie, published in Brussels, from which it appears that Selligue had sufficient tact to keep the scheme afloat for five or six years; but after his disgrace it was speedily superseded by coal gas, even at places where coals were extremely dear. The patents for water gas became quite numerous after 1833, chiefly for modifications of the process, as claimed by Vere and Crane, for mixing the steam and hydro-carbon, previous to decomposition. More than twenty water gas patents are on record in the British offices, besides others on the continent of Europe, and a few in the United States.

Public interest in the subject and also much public controversy was awakened by the ingenuity of Mr. Stephen White, who, in 1847, obtained his first English patent for improvements in making illuminating gas, in which he adopted and improved the Jobard system of decomposing the vapor of water before introducing it into the presence of the decomposing hydro-carbon, whereby he claimed to diminish the waste of the richer portions of his hydro-carbon vapors, which had resulted from their combination with the oxygen of the water, when the latter, or its vapor, were mixed before decomposition.

The persevering efforts of Mr. White and his advocates led to a public discussion of the subject, much embittered by personal crimination of the disputants, who were unable or unwilling to believe that the extremely contradictory results, obtained by skilled operators on one side, and skillful chemists on the other, could be attributed to any other cause than intentional perversions of obvious truths. The vexed question was finally settled, commercially, by the failure of gas companies that had adopted the process and carried it into practical operation. After struggling bravely for several years against unwelcome conviction, these companies were compelled to yield to the inflexible truths concealed in the ledger balance sheets, by which it was demonstrated that water, with all its seeming cheapness, could not succeed in a commercial competition with bituminous coal.

The principles of Mr. White's process, like those of Jobard are certainly more in accord with sound theory than those of any other methods patented either before or since; and there is evidence of the agreement of theory and practice in the fact, that these two are the only patents which have been kept in operation on a large scale for any considerable time—one of them for five years, and the other for two or three.

Mr. White's process was tried at the Philadelphia Gas Works in the years 1850–51, where it was in operation for several months, and mentioned in my annual report of January, 1852, as not yielding results that should lead to its adoption on an extensive scale.

A plan for obtaining light from gas, quite distinct from the ordinary hydro carbon and water processes, was devised some years ago by a chemist, of some note, in France,—Mr. J. P. Gillard,—and was experimented on at the Philadelphia Gas-Works in 1851. Its principal feature was the generation of nearly pure hydrogen gas, by the decomposition of water in a cheap way; and the distribution of this gas for general household purposes of warming and cooking, and to obtain an illuminating effect, by passing a current of the gas tarough the minute meshes of a little basket of very fine platinum wire,

The metal was kept in an incandescent state by the well-known reaction between it and hydrogen gas, giving a pleasant, mild light, without perceptible flame, and with no product of combustion but the vapor of water. Beautiful and ingenious as was Mr. Gillard's plan, it was deficient in the homely requisite, economy, and, of course, met with no encouragement here.

It is understood that its inventor effected its introduction at Narbonne,* where it continues in use to a considerable extent at the present time.

The American history of water-gas is very brief, embracing but few incidents that have excited any public interest, apart from the now pending discussion, and the marvelous statements given by Mr. Paine of Worcester, Massachusetts, in announcing his ability to create an unlimited amount of illuminating power in hydrogen, by an alleged catalysis of materials that exhibited no appreciable waste—the hydrogen being also obtained at an insignificant cost by the action of a magnet.

The boldness with which the merits of this discovery were asserted, produced considerable influence upon excitable people, some of whom believed a grand overthrow of the existing condition of mineral property was impending, and divested themselves of such property with eager haste. That delusion soon passed away, to the great relief of many whose knowledge of the fixed principles of nature was insufficient to exclude grave fears and doubts as to the stability of their cherished opinions.

The only American patents for water-gas known to me

[* An illustrated description of the Water-Gas Works at Narbonne, France, is given in the AMERICAN GAS-LIGHT JOURNAL, Oct. 15, 1860, pp. 121-122.—ED.]

are those of C. Brown, of Baltimore, dating in February, 1850; N. Aubin, of Albany, N. Y., in September, 1854; and J. Milton Sanders, of Cincinnati, in July, 1858.

These are all confined in their claims to quite narrow limits; the numerous patents issued in European countries, having exhausted the possible variations of process and apparatus to so great an extent as to leave but little ground on which to base an exclusive claim to anything useful. Mr. Brown confines his claim to "producing gas from rosin, combined with a due proportion of decomposed water charged with carbon."

Mr. Aubin's claim is for a "steam generator, from which steam passes into a gas-generating retort"

And Mr. Sanders, in its original issue, was limited to "carrying the mixed vapors of water and a hydro-carbon, formed in the manner described, into a retort containing carbon at a high red heat." Brief experience demonstrated the inutility of the peculiar process to which this claim was limited; and it has not been applied in any of the public exhibitions. but has been modified in an amended claim, recorded in a reissue of the patent, in March 1860, so as to admit of an alternative signification, which would not propably have been allowed in explicit terms in the original patent, as it would make the claim cover the identical idea set forth in the English patent of Vere and Crane, in the year 1823.

The amended claim is for "the production of an illuminating gas by passing the vapor of water, and a hydrocarbon or its equivalent, mixed previously to decomposition, into a retort containing carbon at a high red heat."

The foregoing brief sketch presents the chief outlines of the history of water-gas during the period of 33 years elapsed since it first laid claim to a place among the practical arts.

The merits of any particular device or process for its manufacture, claiming novelty, may be discovered without difficulty, by persons skilled in the theory and practice of this art; but can be demonstrated to the satisfaction of the community, only by its adoption in actual practice on a sufficient scale of magnitude, at some place disconnected from a supply of gas of the ordinary manufacture; and where, as in the English and European trials of White's and Jobard's schemes, it will be obliged eventually to stand upon its own economical results, determined by continuous operation for months or years. The final catastrophe in both the above named instances was not made public until several years of struggle between the continual promises of ultimate success and the stubborn realities of increasing financial embarrassment.

### DRY METERS.

The trials of dry meters, with the rotary valve and of glycerine as the liquid seal for wet meters, have been continued through another year, on an increasing scale.

Several hundred dry meters have been added, and the glycerine has been used in several thousand wet meters. Continued inspection of them is maintained, and the results promise to fulfill our utmost anticipations.

### TELEGRAPHING.

The system of telegraphic communication between the offices and manufacturing stations has been extended to all the stations of storage, and to the points where the distribution is regulated by stop valves on the connections between large mains. Another year's experience with this system has furnished increased demonstration of its value in promoting safety and economy.

A complete view of the statistics of the Works, from their commencement, is given in the tabular statements hereto annexed. Respectfully,

JNO. C. CRESSON, *Engineer.*

## REPORT OF THE CASHIER.

*To the Trustees of the Philadelphia Gas-Works:*

GENTLEMEN:—The undersigned herewith presents to the Board the Annual Statements of the Trust, which show its financial transactions for the year, and attest its continued prosperity.

| | |
|---|---|
| The gross profits for the year amount to | $408,435 31 |
| Which have been appropriated as follows: | |
| For interest on Gas Loans, including those payable at the City Treasury | 139,153 00 |
| For the Sinking Funds of all the Gas Loans | 63,451 00 |
| For eight per cent. on $450,000, the valuation of the Spring Garden, Moyamensing, West Philadelphia, and Frankford Gas-Works | 36,000 00 |
| For interest on the Stock of the Southwark Germantown, Manayunk, and Richmond Gas-Works, and appropriations to their several Sinking Funds | 24,059 20 |
| For the increase of the Suspended Debt | 4,315 09 |
| | 266 978 29 |
| For the net profits, to be added to the Contingent Fund. | 141,457 02 |
| | $408,435 31 |

## CASH ACCOUNT.

DR.

| | |
|---|---|
| Balance, January 1st, 1860 | 133,354 57 |
| RECEIPTS IN 1860. | |
| For sale of gas, coke, tar, lime, &c., and rents, | 1,238,447 41 |
| For main pipe and service Pipe | 25 075 06 |
| For City Warrants on hand, January 1, 1860 | 18,322 34 |
| For interest on Gas Loans, held for account of the Sinking Fund | 15,525 00 |
| For interest on City Loans, held as above | 17,810 00 |
| For City Loans redeemed | 6,000 00 |
| For sales of Loan 10 | 115,200 00 |
| For interest on the Sinking Fund of Germantown Gas-Works | 145 00 |
| Southwark and Moyamensing Gas-Works | 96 00 |
| Richmond do. | 21 00 |
| Manayunk do. | 31 50 |
| | 294 00 |
| | $1,570,628 38 |

CR.

| | |
|---|---|
| PAYMENTS IN 1860. | |
| For the construction and enlargement of the Works | 32,698 86 |
| For the extension of the street mains | 139,632 82 |
| For service and main-pipes, meters, &c | 104,799 38 |
| For coal and other materials used in the manufacture of gas, wages of workmen, charge of the public lamps, &c | 610,611 27 |
| For repairs of the Works, street mains, &c | 121,794 73 |
| For incidental expenses, salaries, &c | 139 035 48 |
| For interest on loans | 50 826 18 |
| For investments for the Sinking Fund | 126,683 75 |
| For amount paid City Treasurer for interest on Loans 9 and 10, and appropriation to the Sinking Fund of Loan 10 | 67,604 00 |
| For interest on and appropriation to the Sinking Fund for the redemption of $450,000 of city debt | 36 000 00 |
| For interest on Gas Stocks | 19,028 80 |
| For investments for the Sinking Funds of the Southwark, Germantown, Manayunk, and Richmond Gas Companies | 5 048 50 |
| For Brokerage | 134 93 |
| Balance on hand | 66,729 68 |
| | $1 570,628 38 |

### STATE OF THE WORKS JANUARY 1, 1861.

ASSETS

| | |
|---|---|
| Works | 1,354,156 46 |
| Street mains | 975 500 97 |
| Service pipes and meters | 538,017 59 |
| Public lamps | 11,814 02 |
| Cash | 66,729 68 |
| Suspended debt | 19,659 50 |
| Stocks belonging to the Sinking Fund | 1,175,649 55 |
| Coal on hand | 78,812 00 |
| Coke on hand | 3,120 00 |
| Rosin on hand | 1,760 00 |
| Wood on hand | 3 735 00 |
| Materials for repairs | 15,000 00 |
| Due for gas sold, delivered, and on hand | 205,630 00 |
| Due for coke, tar, &c | 13 500 00 |
| Interest on City Loans, due January 1, 1861 | 9,072 50 |
| Wharf lot on the Schuylkill | 6,000 00 |
| Site of the new Gas-Works | 36,957 69 |
| Spring Garden do. | 300,000 00 |
| Moyamensing do. | 80,000 00 |
| West Philadelphia do | 50,000 00 |
| Frankford do. | 20,000 00 |
| Germantown do. | 90,000 00 |
| Richmond do. | 16,500 00 |
| South'w and Moy'g do. | 113,240 00 |
| Manayunk do. | 81.000 00 |
| Kensington do. | 90,717 79 |
| Stocks belonging to the Sinking Fund, in the hands of the City Treasurer | 64,818 00 |
| | $5,421,390 75 |

LIABILITIES.

| | |
|---|---|
| Loans 1 to 10 | 2,370,000 00 |
| Dividends unpaid | 405 00 |
| Interest on Gas Loans | 17 918 58 |
| Interest on Gas Stocks | 9,565 50 |
| For coals, repairs, and materials used in the manufacture of gas | 227,9-7 58 |
| Sinking Fund | 1,230,420 70 |
| Sinking Fund for the redemption of $450,000 of city debt | 64,818 00 |
| Stockholders of the Southwark and Moyamensing Gas Works, for the cost of said works | 113,240 00 |
| Stockholders of the Manayunk Gas Works, for the cost of said works | 81,000 00 |
| Stockholders of the Richmond Gas-Works, for the cost of said works | 16 500 00 |
| Stockholders of the Germantown Gas-Works, for the cost of said works | 90 000 00 |
| Sinking Fund of South'k and Moy'g Gas-Works | 1,964 54 |
| Do. Germantown do. | 202 25 |
| Do Manayunk do. | 1,027 88 |
| Do. Richmond do, | 444 74 |
| State of Pennsylvania, for State Tax on Gas Stocks | 1,178 39 |
| City of Philadelphia, for Works taken as per Ordinance of March 20th, 1854 | 450,000 00 |
| Profit and Loss, for amount of Suspended Debt | 19 659 50 |
| Contingent Fund | 725,118 09 |
| | $5,421 390 75 |

(Statements of the Sinking Fund are omitted.)

### STATEMENT OF THE PROFIT AND LOSS ACCOUNT FOR 1860.

| | | | |
|---|---|---|---|
| Jan. 1. | Amount due for coals, materials, and repairs, chargeable to the manufacture of gas | 234,469 10 | |
| Dec. 31. | Sales of gas, coke, tar, lime, &c., and rents | 1,238,447 41 | |
| | Stock of coal on hand | 78,812 00 | |
| | Do. coke do. | 3,120 00 | |
| | Do. rosin do. | 1,760 00 | |
| | Do. wood do. | 3,735 00 | |
| | Materials for repairs | 15,000 00 | |
| | Due for coke, lime, tar, &c | 13,500 00 | |
| | Due for gas | 205,630 00 | |
| | Suspended debt | 19,659 50 | |
| | | $1,814,133 01 | |
| Jan 1. | Amount of stock on hand and debts due to the works, at this time | 290,849 30 | |
| Dec. 31. | Payments for the manufacture of gas, coal, and other materials and wages, including the cost of the public lighting | 610.611 27 | |
| | Repairs of the works, street mains, meters, and service pipes | 121,794 73 | |
| | Incidental charges, including wages of meter inspectors, and salaries of officers and clerks | 139,035 48 | |
| | Due for coals, repairs, and materials used in the manufacture of gas, and for public lighting | 227,927 58 | |
| | Paid brokerage on city loans bought | 134 93 | |
| | Suspended debt, January 1, 1860 | 15,344 41 | |
| | | 1,405.697 70 | |
| | Balance January 1, 1861 | 408,435 31 | |
| | | $1,814,133 01 | |

### STATEMENT OF THE CONTINGENT FUND.

| | | |
|---|---|---|
| 1860,—Jan 1. | Amount of the Fund | 583,661 07 |
| Dec. 31. | Increase during the year, as per the profit and loss account | 141,457 02 |
| | | $725,118 09 |

The amount raised under various Ordinances for the construction and enlargement of the Works, for extraordinary repairs and renewals, and for working capital, has been to January 1, 1861,

| | |
|---|---|
| Loans | 2,370,000 00 |
| City of Philadelphia for Works, per Ordinance of March 20th, 1855 | 450,000 00 |
| Contingent Fund, derived from profit | 725,118 09 |
| Stock of Germantown Gas Company | 90,000 00 |
| Richmond do. | 16,500 00 |
| Southwark & Moyamen'g do. | 113,240 00 |
| Manayunk do | 81,000 00 |
| | $3,845,858 09 |

The amount expended has been—

| | |
|---|---|
| Construction of Works | 1,354,156 46 |
| Street mains | 975,500 97 |
| Service pipes and meters | 538,017 59 |
| Public lamps | 11,814 02 |
| Wharf lot on the Schuylkill | 6,000 00 |
| Site of the Gas-Works, First Ward | 36,957 69 |
| Spring Garden Gas-Works | 300,000 00 |
| Moyamensing Gas-Works | 80,000 00 |
| West Philadelphia Gas-Works | 50,000 00 |
| Frankford Gas-Works | 20,000 00 |
| Germantown Gas-Works | 90,000 00 |
| Richmond Gas-Works | 16,500 00 |
| Southwark Gas-Works | 113 240 00 |
| Manayunk Gas-Works | 81 000 00 |
| Kensington Gas-Works | 90,717 79 |
| | $3,763,904 52 |

The liabilities of the Trust, January 1st, 1861, for current business, are as follows:

| | |
|---|---|
| Due for coals, repairs, and materials, used in the manufacture of gas | 227,927 58 |
| Due for works, street mains, service-pipes and meters, | 85 180 86 |
| Due for interest and dividends | 27,889 08 |
| Due to Sinking Fund, for balance of appropriation to said fund | 54,771 15 |
| Due to the Sinking Funds of the several Gas-Works | 3,639 41 |
| Due to State of Pennsylvania, for tax on gas loans and stocks | 1,178 39 |
| | $400,586 47 |

The means to meet said liabilities are—

| | |
|---|---|
| Cash in hand | 66,729 68 |
| Interest due January 1st, 1861, on City Loans | 9,072 50 |
| Debts due for gas, &c., and stock of coals, and materials on hand | 321,557 00 |
| Amount of Gas Loan | 500,000 00 |
| | $897,359 18 |

The principal of Loan No. 3, for $125,000, will become due and payable on the first of March next, and Loan No. 1, for $150,000, will be redeemable on the first of January, 1862.

Very respectfully, your ob't serv't,

W. FENNELL, *Cashier.*

January 25th, 1861.

### 1860 ENGINEER'S ACCOUNTS. 1860

| WORKS. | | STREET MAINS. | | SERVICES. | |
|---|---|---|---|---|---|
| Wages of laborers & mechanics | 9,263 15 | Wages of men employed in laying mains | 24,050 33 | Wages of men employed in laying pipes, setting and fitting up meters | 17,106 99 |
| Castings & machine work | 28.333 77 | Main pipes | 78,331 92 | Meters | 52.549 40 |
| Lumber | 7,631 25 | Paving and stone | 10,937 24 | Stop cocks | 12,095 52 |
| Telegraph extension | 6,408 49 | Lead | 10,415 12 | Tubing and springs | 9,647 86 |
| Fire brick and tile | 3,663 38 | Castings & iron work | 4,437 40 | Paving | 6,040 83 |
| Masonry & brick laying | 3,660 47 | Carting | 3,723 83 | Lumber | 1.713 94 |
| Bricks | 1,870 05 | Main pipes refunded | 3,308 75 | Castings | 1,551 84 |
| Carpenter work | 1,840 25 | Lumber | 1,405 21 | Lead pipe | 1,360 05 |
| Stone | 1,288 26 | Ship Chandlery | 961 32 | Services & meters refunded | 1,050 14 |
| Stop cocks & valves | 1,263 82 | Car hire & tolls | 349 40 | Hardware and tinware | 765 22 |
| Lime | 1,124 80 | Repairing roads | 349 00 | Iron | 397 64 |
| Carting & freight | 791 45 | Drawing & conveyancing | 332 80 | Carting | 285 42 |
| Slate and slating | 711 31 | Exhausters | 317 30 | Push carts | 86 00 |
| Iron bolts, nuts, &c. | 578 08 | Machine work | 242 42 | Taps, dies, and smith work | 25 67 |
| Tubing and bends | 464 80 | Turning | 104 39 | Pumps and plumbing | 19 86 |
| Lead pipe | 406 89 | Pressure registers | 88 00 | | |
| Hardware and burners | 400 37 | Stop cocks | 50 77 | | |
| Clay pipe | 395 82 | Smith work | 49 15 | | |
| Drills, &c. | 354 50 | Masonry, bricks, & lime | 45 95 | | |
| Scales | 341 00 | Proving pump | 20 80 | | |
| Oils, paints &c. | 303 15 | Powder | 12 00 | | |
| Glass | 246 99 | | | | |
| Measuring | 233 22 | | | | |
| Steam and pressure gauges | 212 08 | | | | |
| Injectors | 152 50 | | | | |
| Chemicals | 147 19 | | | | |
| Drawings | 141 00 | | | | |
| Packing & mill boards | 127 80 | | | | |
| Leather | 107 72 | | | | |
| Sand and cement | 100 30 | | | | |
| | 82,693 86 | | 139,532 82 | | 104,099 89 |

1860. ENGINEER'S ACCOUNTS. 1860.

| GAS. | | REPAIRS. | | INCIDENTALS. | |
|---|---|---|---|---|---|
| Wages of stokers, and men employed in retort & purifying houses manufacturing gas, and wheeling coke, coal &c. | 121,074 82 | Wages of mechanics and lab'r's engaged in the repair of works, street mains, & services.. | 30,853 24 | Wages.. | 127,436 75 |
| Coal | 378,562 44 | Castings.. | 38,070 89 | Rents.... | 11,415 79 |
| Gas bought | 15,659 08 | Lumber... | 6,393 90 | Fluid, filling and trimming lamps.... | 11,073 63 |
| Carting | 10,257 40 | Fire brick, tile, and clay..... | 6,194 12 | Carting & freight... | 8,101 99 |
| Wood.. .. | 9,601 63 | Meters and repairs.. | 5,800 47 | Lamps, lanterns, & repairs | 5,582 24 |
| Oyster shells.... | 5,913 09 | Masonry and brick laying.... | 5,120 93 | Printing, Station'ry &c ..... | 4,321 87 |
| Freight on coal..... | 5,196 95 | Machinery and iron work..... | 4,473 73 | Water rent and taxes | 3,189 38 |
| Boating coal.. .... | 2,429 12 | Carpenter work..... | 2,653 70 | Lampposts | 2,932 18 |
| Hoisting coal..... | 1,628 64 | Bricks, cement. &c. | 2,362 45 | Horse and car hire.. | 2,225 08 |
| Splitting wood.... | 259 13 | Oils, paints &c..... | 2,258 55 | Hay, straw and feed. | 2,090 37 |
| Subscriptions and advertising | 44 50 | Wagons, harness, and repairs .... | 2,097 24 | Glycerine & alcohol | 1,571 95 |
| | | Clay retorts..... | 1,936 50 | Relief for injuries. | 1,400 00 |
| | | Hardware, nails, &c | 1,934 91 | Sundries,& carriage hire for Board and Council.. | 1,348 53 |
| | | Carting and freight.. | 1 336 00 | Paints, Oils and Chemicals.... | 1,239 97 |
| | | Tubing ... | 1,277 08 | Hardware and gas fittings... | 864 07 |
| | | Slates and stationery | 1,068 75 | Carpenter w'rk, lumber, bricklaying, & paving... | 713 72 |
| | | Purifying grates... | 1,037 50 | Blacksmithing, coal & machine work .... | 679 00 |
| | | Stop cocks & valves. | 1,017 50 | Barrels & coopering | 452 45 |
| | | Repairs of office and scales.... | 924 00 | Matches... | 385 44 |
| | | Tin work.. | 871 14 | Groceries . | 366 58 |
| | | Birch brushes and brooms.. | 566 94 | Office expenses, & postage, ice, &c.. | 329 68 |
| | | Telegraph repairs.. | 527 35 | Counterfeit money... | 220 00 |
| | | Paving.... | 523 91 | Blankets canvass &c..... | 175 56 |
| | | Shovels... | 460 75 | Professional services | 175 50 |
| | | Sand, Lime and cement .... | 415 12 | Materials for telegraph..... | 134 00 |
| | | Muslin and cotton waste.... | 283 69 | Sundries... | 583 22 |
| | | Pumps and hose..... | 212 11 | | |
| | | Lead pipe and packing.. .... | 193 75 | | |
| | | Barrows, baskets, and buckets ..... | 187 14 | | |
| | | Carpeting. | 154 96 | | |
| | | Ropes and blocking. | 141 07 | | |
| | | Rubber goods..... | 121 44 | | |
| | | Leather and mill boards... | 105 74 | | |
| | | Soap and tallow.... | 71 70 | | |
| | | Sundries.. | 200 56 | | |
| | 551,526 80 | | 121 794 73 | | 189,019 95 |

## STATEMENT OF GAS

*Paid for in each month of the year, made in the First, Ninth, Fifteenth, and Twenty-first Ward, being the amount of bills, as per metres, to the first of the month.*

| 1860. | Feet of Gas Consumed at Private Houses | Public Lamps. | Totals. |
|---|---|---|---|
| January..... | 41,922,700 | | 41,922,700 |
| February..... | 47,508,400 | | 47,508,400 |
| March..... | 57,779,400 | | 57,779,400 |
| April..... | 45,625,200 | | 45,625,200 |
| May..... | 33,636,100 | | 33,636,100 |
| June..... | 42,411,000 | | 42,411,000 |
| July..... | 28,134,400 | | 28,134,400 |
| August..... | 18,579,600 | | 18,579,600 |
| September..... | 23,645,300 | | 23,645,300 |
| October..... | 25,610,600 | | 25,610,600 |
| November..... | 28,418,800 | | 28,418,800 |
| December..... | 53,828,500 | 119,994,818 | 173,823,318 |
| Total..... | 447,000,000 | 119,994,818 | 566,994,818 |
| Inventory of stock of Gas delivered and on hand : January 1, 1861.....102,815,000 January 1, 1860..... 90,062,200 | | | 12,152,800 |
| | | | 579,147,618 |

## STATEMENT OF GAS

*Made at all the Works managed under the Trust, and of that delivered to Public and Private Lights, from January 1st to December 31st, 1850.*

| Year. | Made at Works in First, Ninth, Fifteenth, and Twenty first Wards. | Public Lights. | Private Lights. | Used at the Works, Offices of the Trust, Loss by Leakage. |
|---|---|---|---|---|
| 1859.. ..... | 562,110 000 | 98,900,345 | 295 228,000 | 67,981,655 |
| 1860..... | 639,578,000 | 119,894,818 | 459,152 800 | 60 430,382 |
| | 1,201,688,000 | 218,895,163 | 754,380,800 | 128,412,037 |
| In previous years. | 3,678,262,400 | | | |
| Total..... | 4,880,050,400 | | | |

## LENGTH OF MAINS LAID IN STREETS, EACH YEAR, IN LINEAL FEET.

| YEAR. | 1½ inch. | 2 inch. | 3 inch. | 4 inch. | 6 inch. | 8 inch. | 10 inch. | 12 inch. | 16 inch. | 20 inch. | TOTAL. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1836... | | 2 810 | 15.9 1 | 10,184 | 4 018 | | 9,140 | | | | 41 003 |
| 1837... | | 3,468 | 13,068 | 4,302 | 6,984 | | | | | | 27,822 |
| 1838... | | 150 | 15,660 | 14 409 | 9,036 | | 27 | 10,881 | 2,340 | | 52,503 |
| 1839... | | 1,704 | 11.629 | 11,997 | 4,419 | 3,726 | | | | | 38,475 |
| 1840... | | 222 | 1,674 | 576 | 261 | | | | | | 2,733 |
| 1841... | | 204 | 8 874 | 7,137 | 27 | | | | | | 16 242 |
| 1842... | | 324 | 6,831 | 3,483 | 360 | 774 | | | | | 11.772 |
| 1843... | | 966 | 32.706 | 16,767 | 1.395 | 1,053 | | | | | 52 977 |
| 1844... | | 20 696 | 38 655 | 23 555 | 2,358 | 3,663 | 891 | | | | 99,818 |
| 1845... | 426 | 3.240 | 9 3'0 | 4,725 | 8 7 | | | | | | 18.588 |
| 1846... | | 10,734 | 9,855 | 8,442 | 378 | 2,070 | | | | | 31,479 |
| 1847... | | 4 164 | 6 :40 | 2,808 | 900 | 135 | | | | | 14,067 |
| 1848... | | 1,734 | 7,578 | 3,857 | 1,458 | 477 | | | | | 16,144 |
| 1849... | | 9,690 | 9,117 | 5 724 | 2,934 | 13,284 | 4,266 | 2,619 | 8,073 | 495 | 56,202 |
| 1850... | | 6,666 | 9 513 | 6 345 | 2 718 | | | | | | 25.2 2 |
| 1851... | | 11,901 | 18 441 | 10,755 | 720 | 324 | | | | | 42.141 |
| 1852... | | 18,364 | 19 710 | 14 158 | | 1,359 | | | | 6.867 | 61,7:8 |
| 1853... | | 7,152 | 3,744 | 3,780 | 414 | | | | 720 | 1,257 | 23 067 |
| 1854... | | 678 | 1,026 | 828 | | | | | | | 2,532 |
| 1855*.. | | 3,271 | 202,958 | 173,389 | 56,378 | 16,997 | 3,151 | 8,276 | | 8,014 | 452 334 |
| 1856*.. | | 1,956 | 19 941 | 16,596 | 7,286 | 3,834 | 5 | | | 504 | 50,123 |
| 1857.. | | 363 | 1 844 | 325 | 117 | 34 | | | | | 2 683 |
| 1858*.. | 204 | 11.500 | 76,968 | 94 400 | 20,776 | 9,691 | | | | | 213 539 |
| 1859*.. | 236 | 18,606 | 250,715 | 92,467 | 58,041 | 17,173 | 2,614 | 2 :70 | | | 442 422 |
| 1860... | 3.080 | 31,673 | 98,640 | 71,453 | 16,450 | 11,202 | | | | | 232 498 |
| Total.. | 3,946 | 182 236 | 891.208 | 603 302 | 178 265 | 85,796 | 20 094 | 24 346 | 11,133 | 23,137 | 2 0:3.363 |

*Including pipes received from private Gas Companies.

## ANNUAL REGISTRY OF CONSUMERS, AND OF PRIVATE AND PUBLIC LIGHTS.

| YEAR. | Applications. | Removals and Discontinuances. | Total Number of Consum'rs | Private Lights. | | Public Lights. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Added. | Total. | Streets. | Market Houses. | Squares. | Total |
| 1836..... | 301 | 24 | 277 | 2,952 | 2,952 | 165 | | | 165 |
| 1837..... | 497 | 108 | 666 | 3,862 | 6,814 | 136 | | | 301 |
| 1838..... | 849 | 174 | 1 341 | 4 288 | 11,102 | 133 | | 62 | 496 |
| 1839..... | 946 | 300 | 1,987 | 5,380 | 16,482 | 162 | 18 | | 676 |
| 1840..... | 788 | 382 | 2,393 | 3,317 | 19,799 | 112 | 1 | | 789 |
| 1841..... | 874 | 493 | 2,774 | 4,387 | 24,186 | 13 | 8 | | 810 |
| 1842..... | 845 | 541 | 3.078 | 3 054 | 27,240 | 30 | | | 840 |
| 1843..... | 986 | 635 | 3,429 | 3 4 8 | 30,658 | 59 | | | 899 |
| 1844..... | 1,000 | 503 | 3,924 | 4 940 | 35,598 | 195 | | | 1,094 |
| 1845..... | 1,147 | 620 | 4 444 | 5,754 | 41 352 | 112 | | | 1 206 |
| 1846... ..... | 1 465 | 717 | 5,192 | 8 138 | 49,490 | 96 | | | 1,302 |
| 1847..... | 1,8 9 | 887 | 6,174 | 12,987 | 62 477 | 84 | 10 | | 1 396 |
| 1848..... | 1.956 | 1.002 | 7,128 | 13,935 | 76,412 | 21 | | | 1,417 |
| 1849..... | 2,191 | 1,180 | 8.139 | 18,050 | 94,462 | 74 | | | 1,491 |
| 1850..... | 2,227 | 1,150 | 9,216 | 20 542 | 1 5,0:4 | 72 | 13 | | 1,576 |
| 1851..... | 2.529 | 1,339 | 10,406 | 21,616 | 136,620 | 124 | | | 1,700 |
| 1852..... | 3 004 | 1.747 | 11,663 | 20,550 | 157,170 | 118 | | | 1,818 |
| 1853..... | 3 280 | 1.954 | 12,989 | 25,432 | 182 602 | 87 | | :3 | 1,928 |
| 1854..... | 2 884 | 1,969 | 13.904 | 18,127 | 200,729 | 27 | | | 1,955 |
| 1855*..... | 17,479 | 8 485 | 22,898 | 82,487 | 283,216 | 1,368 | 26 | | 3 349 |
| 1856*..... | 6.272 | 4,626 | 25,544 | 32 225 | 315,441 | 84 | | | 3,433 |
| 1857..... | 5,104 | 4.744 | 26,204 | 17,046 | 332,487 | 68 | | | 3 501 |
| 1858*..... | 11,101 | 8,152 | 29,053 | 41 959 | 374,446 | 562 | 21 | 6 | 4,090 |
| 1859*..... | 14,108 | 6,381 | 37,780 | 61,781 | 436,227 | 905 | † 18 | 49 | 5,079 |
| 1860.. ..... | 10,876 | 7,256 | 41 200 | 38,734 | 474,961 | 478 | 44 | | 5,601 |
| Total..... | 96,578 | 55 378 | . ..... | 474,961 | ..... | 5.345 | 116 | 140 | ..... |

* Including those received from private Gas Companies.
† During the year 1859, 18 lights were added in market houses, and 43 discontinued.

## METERS SET.

| 1860. | Services Laid. | 3 Light. | 5 Light. | 10 Light. | 20 Light. | 30 Light. | 45 Light. | 60 Light. | 100 Light. | 150 Light. | 500 Light. | 1500 Light. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| To January 1st..... | 36,426 | 20 900 | 9,943 | 3,913 | 1,374 | 294 | 143 | 56 | 80 | 1 | 6 | 1 | 36,311 |
| January ..... | 98 | 39 | 18 | 22 | 7 | 1 | 3 | 3 | 5 | | | | 98 |
| February..... | 117 | 65 | 26 | 14 | 1 | 1 | | ..... | | | | | 117 |
| March..... | 431 | 200 | 102 | 63 | 13 | 1 | 1 | 1 | | | | | 431 |
| April... ..... | 432 | 166 | 67 | 58 | 19 | 2 | | | | | | | 432 |
| May..... | 448 | 249 | 85 | 40 | 20 | 3 | 1 | | | | | | 448 |
| June..... | 306 | 198 | 61 | 30 | 12 | 1 | 3 | | 1 | | | | 306 |
| July..... | 198 | 113 | 52 | 25 | 4 | 3 | 1 | | | | | | 198 |
| August..... | 212 | 126 | 48 | 26 | 11 | 1 | 2 | | | | | | 212 |
| September..... | 277 | 153 | 61 | 39 | 17 | 4 | 1 | 2 | | | | | 277 |
| October..... | 313 | 194 | 53 | 35 | 21 | 5 | 1 | 2 | 2 | | | | 313 |
| November..... | 432 | 247 | 74 | 72 | 27 | 4 | 2 | 2 | 2 | | | | 432 |
| December..... | 269 | 188 | 44 | 38 | 21 | 3 | 3 | 1 | | 1 | | | 269 |
| Total..... | 3,533 | 2,118 | 709 | 462 | 173 | 29 | 18 | 13 | 10 | 1 | | | 3,533 |
| Brought down..... | 36,426 | 20,700 | 9,943 | 3,913 | 1,374 | 294 | 143 | 56 | 80 | 1 | 6 | 1 | 36,311 |
| Grand Total. ..... | 39,959 | 22,818 | 10,652 | 4,375 | 1 547 | 323 | 161 | 69 | 90 | 2 | 6 | 1 | 39,844 |

## MAIN PIPES LAID IN STREETS.

| 1860. | 1¼ inch. | 2 inch. | 3 inch. | 4 inch. | 6 inch. | 8 inch. | 10 inch. | 12 inch. | 16 inch | 20 inch. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| To Jan'y 1. | 866 | 150,563 | 702,568 | 531,749 | 161,815 | 74,594 | 20,094 | 24,346 | 11,133 | 23,137 | 1,790,865 |
| January.. | | | 1,139 | 883 | | | | | | | 2,022 |
| February. | | | | | | | | | | | |
| March.... | | 1.854 | 18,572 | 8.119 | | 4 | | | | | 28,549 |
| April..... | 1.954 | 10,653 | 15,728 | 9 997 | | | | | | | 38,332 |
| May..... | 804 | 11,878 | 22.79: | 16,79: | 548 | | | | | | 52,818 |
| June..... | 192 | 4,012 | 4,406 | 1,519 | | 4 | | | | | 10 133 |
| July..... | | 394 | 440 | 76 | | | | | | | 910 |
| August... | 130 | | 441 | 543 | | 4 | | | | | 1,118 |
| Septe'ber. | | | 570 | 166 | | | | | | | 736 |
| October... | | | 7,918 | 4 573 | | 4,09: | | | | | 16 589 |
| November | | 1,866 | 16 820 | 20,527 | 3,292 | 7,07: | | | | | 49 577 |
| December | | 1,016 | 9 814 | 8,254 | 12,619 | 2( | | | | | 31,714 |
| Total .. | 3,080 | 31,673 | 98,640 | 71,45 | 16 450 | 11,20: | | | | | 232,498 |
| Br't down | 866 | 150,563 | 702,568 | 531,749 | 161,815 | 74,59 | 20,094 | 24,346 | 11,13: | 23,137 | 1 790,865 |
| Gr'd Total | 3,946 | 182,236 | 891,208 | 603,202 | 178,265 | 85,79: | 20,094 | 24 346 | 11,133 | 23,137 | 2,023,363 |

STATEMENT OF GAS DELIVERED TO PUBLIC AND PRIVATE LIGHTS UP TO DECEMBER 31, IN EACH YEAR, BY THE WORKS IN THE FIRST AND NINTH WARDS.

| YEAR. | PUBLIC LIGHTS. | PRIVATE LIGHTS. | SPRING GARDEN. | SOUTHWARK. | MOYAMENSING. | WEST PHILADELPHIA. | GERMANTOWN. | Used at Offices, Shops, and Works, Loss, by Leaking, &c. | MADE AT WORKS. |
|---|---|---|---|---|---|---|---|---|---|
| 1836 | 978,812 | 4,752,74 | | | | | | 749,748 | 6,481,300 |
| 1837 | 1,397,687 | 14,451,891 | | | | | | 1,226,122 | 17,078,7 0 |
| 1838 | 3,013,646 | 22,366,004 | | | | | | 1 977 450 | 27,357,000 |
| 1839 | 6,280,654 | 30,658,145 | | | | | | 2,534,201 | 39,473,000 |
| 1840 | 8,028,818 | 34 874 380 | | | | | | 2,503,802 | 45,410,000 |
| 1841 | 10,208 180 | 39,648 000 | | | | | | 1,415,820 | 51 272,( 01 |
| 1842 | 13,292,000 | 36,596,8 0 | | | | | | 922 170 | 50,811.000 |
| 1843 | 12,985,851 | 34,579,900 | | | | | | 1,824,249 | 48,890 000 |
| 1844 | 13 603,356 | 40.022 800 | | | | | | 1,152 844 | 54,784 000 |
| 1845 | 17 373,798 | 46,702 800 | | | | | | 926 402 | 65,003,000 |
| 1846 | 19,164.106 | 55 219 800 | 163,400 | | | | | 906,694 | 75,454 000 |
| 1847 | 19 122,293 | 68.071,600 | 2,807,100 | | | | | 1,846 007 | 91,547.000 |
| 1848 | 19,924,700 | 78,921,350 | 6.817,000 | | | | | 1.109.950 | 106,773.000 |
| 1849 | 24,524 950 | 96,247,100 | 10,713.200 | 2,322,800 | 195,800 | | | 1.505,150 | 135.509,000 |
| 1850 | 28 482 800 | 131,258,400 | 17,650,600 | 3,457,800 | 417 900 | | | 748 600 | 182.016,000 |
| 1851 | 36,524 625 | 145.114,200 | 7,039,800 | 5 279,000 | 1,254,700 | | | 5 823,675 | 200,842.000 |
| 1852 | 38,306,250 | 162 093 100 | | 5 9.7.90 | 2,892,400 | 554,000 | | 6 641.750 | 216,216,000 |
| 1853 | 37,406,625 | 191,679,750 | | 10,458,2 0 | 5,810,700 | 2,765.720 | | 1,306 005 | 249,427,000 |
| 1854 | 40.177,874 | 209,334,300 | | 14 989,200 | 8,204,000 | 6 501,800 | | 2,916,826 | 282,224,000 |
| 1855 | 58.319,350 | 237 250,165 | | 18,099.000 | 7,660,000 | 10,386,200 | | 16 062 085 | 347,777,400 |
| 1856 | 80 935 200 | 304 961 250 | | 18,992,500 | | | | 29,853 050 | 434,742,000 |
| 1857 | 81,312 484 | 318 928,400 | | 20 860,000 | | | 7,062 000 | 37 004 116 | 469,087,000 |
| 1858 | 89.850,229 | 3 3,610,550 | | 24,678,200 | | | 6,492,000 | 35.577,021 | 480,208,000 |
| Total. | 664,219,188 | 2,627,346 455 | 44,891.100 | 125.064.600 | 26,5:6.100 | 20,008 320 | 14 454 000 | 155 842.637 | 3 678,882,400 |

STATEMENT OF METERS SET EACH YEAR.

| YEAR. | Services Laid. | 3 Light. | 5 Light. | 10 Light. | 20 Light. | 30 Light. | 45 Light. | 60 Light. | 10? Light | 16? Light | 500 Light. | 1500 Light. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1836 | 251 | 108 | 98 | 31 | 9 | 2 | 3 | | | | | |
| 1837 | 411 | 201 | 77 | 19 | 6 | 2 | 8 | | 3 | | | |
| 1838 | 690 | 442 | 159 | 61 | 13 | 9 | 2 | 1 | 3 | | | |
| 1839 | 649 | 421 | 118 | 75 | 26 | 6 | 8 | | | | | |
| 1840 | 350 | 198 | 78 | 54 | 13 | 3 | 2 | | 2 | | | |
| 1841 | 375 | 203 | 93 | 63 | 14 | 2 | | | | | | |
| 1842 | 299 | 157 | 76 | 57 | 6 | 3 | | | | | | |
| 1843 | 348 | 180 | 110 | 50 | 7 | 1 | | | | | | |
| 1844 | 503 | 292 | 129 | 72 | 5 | 3 | 1 | | 1 | | | |
| 1845 | 523 | 311 | 151 | 49 | 7 | 4 | | 1 | | | | |
| 1846 | 761 | 390 | 237 | 113 | 14 | 4 | 2 | 1 | | | | |
| 1847 | 999 | 481 | 300 | 202 | 12 | 1 | 8 | | | | | |
| 1848 | 971 | 408 | 333 | 196 | 25 | 4 | 3 | 1 | 1 | | | |
| 1849 | 1,029 | 366 | 366 | 234 | 46 | 7 | 5 | 2 | 3 | | | |
| 1850 | 1,079 | 435 | 412 | 165 | 50 | 8 | 3 | 3 | 3 | | | |
| 1851 | 1 211 | 534 | 373 | 204 | 76 | 15 | 4 | 2 | 3 | | | |
| 1852 | 1 241 | 638 | 334 | 200 | 60 | 18 | 7 | 3 | 1 | | | |
| 1853 | 1,364 | 688 | 360 | 167 | 92 | 23 | 12 | 6 | 15 | 1 | | |
| 1854 | 939 | 470 | 207 | 127 | 80 | 29 | 14 | 2 | 1 | | | |
| 1855* | 8,110 | 4.290 | 3,158 | 369 | 150 | 28 | 28 | 11 | 23 | | | |
| 1856* | 2 323 | 1.055 | 698 | 375 | 144 | 23 | 15 | 8 | 4 | | 4 | |
| 1857 | 734 | 209 | 220 | 181 | 95 | 12 | 9 | 2 | 3 | | | |
| 1858* | 3,717 | 2,491 | 643 | 298 | 166 | 40 | 8 | 3 | 3 | | | |
| 1859* | 7.529 | 5,432 | 1.213 | 548 | 249 | 47 | 16 | 10 | 11 | | 2 | 1 |
| 1860 | 3,533 | 2.118 | 709 | 462 | 173 | 29 | 18 | 13 | 10 | 1 | | |
| Total | 39,959 | 22,618 | 10 652 | 4.375 | 1,547 | 323 | 161 | 69 | 90 | 2 | 6 | 1 |

*Including those received from private Gas Companies.

REPAIRS OF SERVICES, &c

| 1860. | Services Renewed. | Stop Cocks Renewed. | Stop Cock Boxes Renewed. | Rims and Covers Renewed. |
|---|---|---|---|---|
| January | 5 | 5 | 13 | 19 |
| February | 5 | 2 | 21 | 12 |
| March | | | 151 | 11 |
| April | 3 | 2 | 268 | 38 |
| May | 4 | 4 | 269 | 32 |
| June | 4 | 4 | 438 | 37 |
| July | 4 | 4 | 597 | 35 |
| August | 6 | 6 | 177 | 17 |
| September | | | 84 | 13 |
| October | 1 | 1 | 101 | 8 |
| November | 3 | 3 | 117 | 14 |
| December | | | 70 | 9 |
| Total | 35 | 31 | 2,306 | 249 |

NUMBER OF LAMPS UNDER THE CARE OF THE DEPARTMENT OF PUBLIC LIGHTING, JANUARY 1st, 1861.

| | Gas. | Fluid. |
|---|---|---|
| *City—Including Moyamensing, Southwark, West Philadelphia, Spring Garden, Kensington, Richmond, Germantown, Manayunk, Frankford, and Nicetown | 5,484 | 424 |
| †Northern Liberties | 400 | 37 |
| | 5 884 | 461 |
| | 461 | |
| Total number | 6 345 | |

* Supplied directly from City Works.
† Supplied from Northern Liberties Gas Works.

BOARD OF TRUSTEES FOR 1861.

*President*.....EDWARD H. TROTTER.

DIRECTORS:

| | |
|---|---|
| FREDERICK FRALEY, | CHARLES E. GRAEFF, |
| WILLIAM M REILLY, | JOHN MANUEL, |
| WILLIAM L. HIRST, | T. C. WOOD. |
| CONRAD S. GROVE, | W. R. WISTER, |
| EDWARD H. TROTTER, | SAMUEL BELL, JR., |
| PAUL J. FIELD, | CHARLES A. RUBICAM. |

ENGINEER,
JOHN C. CRESSON.
Appointed August 26th, 1836.

CASHIER,
WILLIAM FENNELL,
Appointed April 10th, 1857.

REGISTRAR,
JOHN P. MURTA,
Appointed April 10th, 1857.

A COMPLETE LIST OF THE TRUSTEES OF THE PHILADELPHIA GAS-WORKS,

FROM THE COMMENCEMENT IN THE ORDER OF THEIR APPOINTMENT.

*Elections by Select Council, March 26th, 1835.*

Benjamin W. Richards, John R. Latimer, } for one year.
A. D. Bache, W. H. Keating, } for two years.
J. P. Wetherill, H. M. Zollickoffer, } for three years.

*Elections by Common Council.*

John Farr, R. M. Huston, } for one year.
Frederick Fraley, Ephraim Haines, } for two years.
M. W. Baldwin, Thomas Cave, } for three years.

B. W. RICHARDS, *President.*
SAMUEL V. MERRICK, *Engineer.*
BENJAMIN MATTHIAS, *Secretary.*

B. W. Richards resigned the Presidency June 20th, 1835.
Dr. R. M. Huston elected President July 10th, 1835.
Dr. J. K. Mitchell elected July 9th, 1835, in place of B. W. Richards, resigned.
John Siter elected January 28th, 1836, in place of J. K. Mitchell, resigned.
Benjamin Matthias, Secretary, resigned March, 1836.
Frederick Brown elected January 19th, 1837, in place of A. D Bache, whose term of service xpired.
Samuel V. Merrick, Engineer, resigned February, 1837.
Alexander Ferguson elected November 23d, 1837, in place of Ephriam Haines, deceased.
John Wiegand elected April 12th, 1838, in place of H. M. Zollickoffer, resigned.
A. D Bache elected September 27th, 1838, in place of John Siter, resigned.
George Handy elected January 30th, 1839, in place of J. R. Latimer, resigned.
Thomas Cave elected President in place of Dr. R. M. Huston, resigned June 28th, 1839.
Charles Gilpin elected January 14th, 1841, in place of W. H. Keating, deceased.
Thomas S. Smith elected January 28th, 1841, in place of M. W. Baldwin, whose term of service expired.
Dr. G. H. Burgin elected January 20th, 1842, in place of George Handy, whose term of service expired.
Isaac Myer elected January 20th, 1842, in place of R. M. Huston, whose term of service expired.
Samuel Norris elected January 19th, 1843, in place of Alexander Ferguson, whose term of service expired.
Isaac Barton elected January 18th, 1844, in place of Thomas S. Smith, whose term of service expired.
John C. Davis elected November 7th, 1844, in place of A. D. Bache, resigned.
Frederick Fraley elected President, in place of Thomas Cave, deceased, March 28th, 1845.
Joseph S. Lovering elected April 10th, 1845, in place of Thomas Cave, deceased.
John Trucks elected June 19th, 1845, in place of Charles Gilpin, resigned.
Jacob E. Hagert elected January 29th, 1846, in place of Frederick Brown, whose term of service expired.
Frederick Brown elected March 25th, 1846, in place of John Farr, deceased.
M. W. Baldwin elected October 28th, 1847, in place of John Trucks, resigned
John Agnew elected December 23d, 1847, in place of J. E. Hagert, resigned.
William Morris elected January 20th, 1848, in place of J. C. Davis, whose term of service expired.
John F. Gilpin elected January 20th, 1848, in place of G. H. Burgin, whose term of service expired.
Dr. G. H. Burgin elected April 6th, 1848, in place of J. S. Lovering, resigned
John C. Davis elected April 13th, 1848, in place of W. Morris, resigned.
James Traquair elected January 18th, 1849, in place of Frederick Brown, resigned
John Lindsay elected December 20th, 1849, in place of J. P. Wetherill resigned
Lewis Cooper elected December 20th, 1849, in place of J. C. Davis, resigned.
B. M. Fel well elected January 31st, 1850, in place of Isaac Barton, resigned
E. Y Farquhar elected March 15th, 1850, in place of J. Lindsay, resigned
John C. Davis elected October 24th, 1850, in place of E. Y. Farquhar, resigned.
Charles Lennig elected October 24th, 1850, in place of John Agnew, resigned.
Benjamin Gerhard elected January 30th, 1851, in place of Isaac Hazel, resigned.
E. A Souder elected January 29th, 1852, in place of M. W. Baldwin, resigned.
Samuel R. Brick elected January 25th, 1855, in place of E. A. Souder, whose term of service expired.
Wm. J. P. White elected January 25th, 1855, in place of Charles Lennig, whose term of service expired.
John Manual elected January 25th, 1855, in place of Samuel Norris, whose term of service expired.
Wm. G. Flanagan elected January 25th, 1855, in place of Frederick Fraley, whose term of service expired.
John Wiegand elected President January 26th, 1855, in place of Frederick Fraley, whose term of service expired.
Frederick Fraley elected Trustee August 2d, 1855, in place of John Wiegand, resigned.
Dr. G H. Burgin elected President August 24th, 1855, in place of of John Wiegand, resigned.
Paul J. Field elected January 31st, 1856, in place of John C. Davis whose term of service expired
John M. denheimer elected January 31st, 1856, in place of Benjamin M. Fellwell, whose term of service expired.
G. W. Biddle elected June 26th, 1856, in place of W. G. Flanagan, resigned.
Anthony Miskey elected January 29th, 1857, in place of John F. Gilpin, whose term of service expired.
Andrew C. Craig elected January 29th, 1857, in place of James Traquair, whose term of service expired.
William M. Reilly elected January 28th, 1858, in place of Samuel R. Brick, whose term of service expired.
Harry Connelly elected January 28th, 1858, in place of W. J. P. White, whose term of service expired.
William B. Small M. D., elected January 28th, 1858, in place of John Manuel, whose term of service expired.
Charles Leveret Wolff elected January 28th, 1858, in place of Geo. W. Biddle, whose term of service expired.
Andrew C. Craig elected President February 12th, 1858, in place of Dr. G. H. Burgin, whose term of service expired.
Conrad S. Grove elected January 27th, 1859, in place of John M. Odenheimer, deceased.
Edward H. Trotter elected January 27th, 1859, in place of Dr. Geo. H. Burgin, whose term of Service expired.
William L. Hirst elected January 28th, 1859, in place of Paul J. Field whose term of service expired.
Charles E. Graeff elected January 26th, 1860, in place of Anthony Miskey, whose term of service expired.
Paul J. Field elected January 26th, 1860, in place of Lewis Cooper, whose term of service expired
John Manuel elected January 26th, 1860, in place of Benjamin Gerhard, whose term of service expired.
T. Chalkley Wood elected January 26th, 1860, in place of Andrew C. C aig, whose term of service expired.
Edward H. Trotter elected President January 27th, 1860, in place of Andrew C. Craig, whose term of service expired.
Chas. A Rubicam elected January 31st, 1861, in place of Harry Connelly whose term of service expired.
Wm. Rotch Wister elected January 31st, 1861, in place of Dr. Wm. B. Small, whose term of service expired.
Samuel Bell, Jr., elected January 31st, 1861, in place of Chas. L. Wolff, whose term of service expired.

DRUNKENNESS IN FRANCE, AND ITS CAUSES.—While we are introducing French wines to the notice of the lower classes, in the hope that drunkenness may be diminished by their substitution for worse liquors, the mayors and statisticians of France are crying out, "shut up the wine-shops;" because, according to M. Jules Simon, who has investigated the subject, "drunkenness is the beginning and the end of French industrial life." Considering the character for temperance which the working classes in France have hitherto borne with us, this is somewhat surprising. It appears to be considered, however, by M. Simon and others, that the wine-shops are not to be blamed at least primarily; but the squalid, uncomfortable homes of the people in the manufacturing districts, where, chiefly, the drunkenness prevails. And nothing can be more likely in such a case than that—there as here—ill-ventilated, close and unwholesome dwellings, will lead those resident in them to an unnatural craving for stimulants. By reaction, too, of course, drunken habits must render dwellings still more squalid and unwholesome. The testimony of M. Simon applies to England no less than to France, although it is questionable whether the evil and its concomitants be not even worse in France than it has long been known to be in England. If some of the liberal subscriptions which are (figuratively, if not literally) sent to Borrioboola-gha, were expended in the improvement of dwellings at home, the money would not only be reproductive of cash profit, but of profit to humanity of a far more important kind.

AN OILY TRANSACTION.—Wooden nutmegs and shoepeg oats are not the only means whereby sharpers contrive to "raise the wind," as the following item will show:

A rogue living in the Northwestern part of Pennsylvania becoming envious of the success of some of his neighbors in finding oil on their lands, determined to make a raise at all hazards. Accordingly, finding his land as innocent of the coveted fluid as it was of diamonds, he bored a hole, poured a barrel of oil into it, and then called his neighbors to see the large yield. A verdant speculator happening to pass that way, the enterprising borer sold his land for $2,000, pocketed the money and left for parts unknown, leaving the unfortunate purchaser to ruminate upon the frailty of human nature in general, and of oil placers in particular.

A HIGH LIGHTHOUSE.—The new Lighthouse at the Cape of Good Hope stands 800 feet above the level of the sea at the extreme point of the Cape, and may be seen in clear weather at a distance of forty miles.

**THE AMERICAN GAS-LIGHT JOURNAL** is published on the 1st and 15th of every month and is specially devoted to

LIGHT, HEAT, WATER-SUPPLY, AND SEWERAGE.

Its purpose is to ascertain and make known all new discoveries in the science and economical application of LIGHT, and promote thereby the interests of companies and consumers; to encourage and aid the introduction of PURE WATER from Lakes and Rivers into Towns and Cities, and to improve the system of SEWERAGE, VENTILATION, and DRAINAGE everywhere.

*Incidentally with these results, the business of all Gas and Steam Fitters and Plumbers; the erection of Gas-Works and Water-Works; the consumption of Coals, the manufacture and consumption of Coal-Oils, the manufacture of Gas-Pipe, Water-Pipe, Steam-Pipe, Gas Fixtures, Gas-Meters, Water-Meters, Retorts of iron and clay, and their varied apparatus; of Drain Pipes, Ventilating, Heating and Dredging Machines, will be increased immeasurably.*

THERE ARE 20,000 CITIES AND TOWNS IN THE UNITED STATES, CAPABLE OF SUPPORTING GAS-WORKS, WHILE THERE ARE NOT 400 GAS-WORKS IN OPERATION IN THE WHOLE COUNTRY!!!

New works are now springing up, however, every week, and they will continue to increase rapidly hereafter.

Advertisers of Gas-Coals, Coal-Oil, Water, Steam, Sewerage and Ventilating apparatus, and of Iron and Brass manufactures, &c., will find the AMERICAN GAS-LIGHT JOURNAL the most desirable and efficient medium of any in the United States, going, as it does, direct to the parties interested in those subjects.

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JOHN B. MURRAY,
ROOMS of the AMERICAN GAS-LIGHT JOURNAL,
Nos. 254 and 256 Canal street, NEW-YORK CITY.

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THE
**AMERICAN GAS-LIGHT JOURNAL.**
PUBLISHED ON 1ST AND 15TH OF EVERY MONTH.

PROPRIETOR, JOHN B. MURRAY. } { EDITOR, C ELTON BUCK.

FRIDAY, MARCH 1, 1861.

Although exhausters are now deemed instruments of paramount importance in gas-works, particularly those of any considerable size, it is somewhat strange that so many companies refrain from procuring them. The testimony of those who have employed them for some time, as well as those who have recently adopted them, is identical, as regards the beneficial results of their working, and the verdict in their favor is unanimous. By the reports of the various gas-light companies, which we are constantly receiving, we notice that many of these establishments where the exhauster ought to be performing its mission of economy, are still without it, and no effort is made to effect the saving which it is well known this apparatus can, and in other works, does perform.

It would seem almost useless to enter into any detailed argument here, to show the advantages of the exhauster, as these are generally acknowledged, and few would have the temerity to deny them. But in gas-works in many of our increasing towns, where gradual additions have from time to time been made to their capacity, the exhauster should at once be employed. In these places where gas-works were formerly of limited extent, the use of exhausters was not felt to be indispensable as it would have been, had they been originally constructed of their present size. By gradual increase and the addition from time to time of new benches of retorts to supply the increasing demand for gas, the enlargement has progressed so slowly, that the necessity of an exhausting apparatus has not been manifested to that degree, which under other circumstances would have been the case. At the present time, however, the engineers and superintendents of such works, are beginning to arouse to a sense of the importance of genuine reforms, and are manifesting a commendable degree of enterprise in the introduction of improved forms of apparatus, being convinced that true economy is thereby promoted.

It is plain to the comprehension of every reasonable mind, that in gas-works of considerable extent, the degree of pressure in the retorts and hydraulic main must be very great unless suitable means are employed to reduce it. As a consequence of this undue compression, a large deposition of valuable carbonaceous matter occurs in the retorts, and leakage is also liable to ensue. Moreover, in addition to the loss of these luminous hydro-carbon vapors, the retort itself is in danger of being rapidly burnt out, in the event of such a deposition. These occurrences are familiar to most gas-engineers, and do not need enlargement here. They prove, however, the necessity of obviating the evil, and the exhauster is the apparatus which affords the remedy.

The introduction of an exhaust apparatus is due to Mr. GRAFTON, whose name is favorably known in the annals of gas-lighting. In the use of the peculiar fire-brick retorts which are designated by his name, he had for a long period noticed the deposition of carbon in considerable quantities, the cause of which was at that time not rightly conjectured. Mr. GRAFTON commenced a series of experiments in 1839, with the view of determining the cause of the deposit, and in the course of his investigations, sought eminent scientific counsel. The first impression respecting the difficulty, led to the belief that the deposit was caused by unduly heating the retorts, and the exposure of too great an extent of heated surface. These opinions, however, did not satisfy Mr. GRAFTON, who patiently prosecuted his experiments until he arrived at the correct conclusion, and discovered the real cause of the deposit, viz.—the great pressure on the retorts caused by the resistance offered to the gas by the condensers, purifiers, and gas-holders. During the continuance of the experiments the amount of carbonaceous matter deposited was equal to 1 3-10ths per cent. of the coal carbonized. The theory that the formation of the deposit was caused by the compression of gas was confirmed by removing the gas as soon as generated, when the interior of the retorts was found clean, even after a protracted period.

Mr. GRAFTON'S exhauster was somewhat similar in construction to a wet meter, caused to revolve in an opposite direction by mechanical means. It was made to combine the advantages of a purifier also, by using milk of lime as the liquid. This apparatus was well adapted to the purpose for which it was intended, but it required too great power to work it, which rendered its adoption a matter of considerable expense. A number of other forms have been contrived, some of which effect the desired object in a very satisfactory manner. The exhauster known as MACKENZIE'S is generally employed in this country, and it seems to perform its office economically, with the least possible degree of friction, owing to its peculiar construction. In England, and indeed in most parts of Europe, BEALE'S exhauster is more extensively used than any other. Both of these forms of apparatus pass the requisite amount of gas, and they are conconstructed of several dimensions, in order that they may be properly adjusted to any given quantity.

A difference of opinion exists as to the proper position of the exhauster in the works. Some engineers prefer placing it between the hydraulic main and the condensers, while others locate it between the condensers and the purifiers. The former arrangement has been received with a considerable degree of favor, and in most establishments it is adopted. As the exhauster combines the operations of a suction and force pump, this arrangement is far more efficacious than any other and not only relieves the hydraulic main of the excessive pressure, but also facilitates the transmission of the gas through the condensers and purifiers, the influence of which would otherwise tend to retard its passage. In order that the degree of pressure may at all times be known, a gauge is placed on the inlet pipe of the exhauster, and also on the outlet pipe. By this means a glance at the indices will at once reveal the effect of exhaustion, and any irregularity in the operation of the apparatus is immediately detected.

In order to prevent the exhaustion being carried too far, a compensator is attached, so adjusted as to regulate the degree of pressure with minute accuracy. This apparatus is necessary; for without it atmospheric air might be drawn into the hydraulic main on the opening of a retort, and serious consequences would be liable to ensue. The compensator is merely a small gas-holder, of which a representation is given on page 222 of this volume, so regulated as to maintain an equitable degree of pressure in the pipes. In the letter of an esteemed correspondent on the page above referred to, is a description of a new compensator valve which possesses a great advantage over the cone valve commonly employed, in avoiding the concussion which is sure to attend the use of the latter; and the motion of the exhauster is also more satisfactorily adjusted by this arrangement.

One objection which is urged against exhausters, is the power which is required to run them; but we think this is much overrated. In works where steam power is already employed, the additional task which would be imposed by an exhauster is but a trifling matter, compared with the advantages which are sure to follow; and in those where steam has not been introduced, it might be employed to effect a saving in other departments, and at the same time be used to propel an exhauster. But be this as it may, it is a fact patent to the minds of enlightened engineers, that this apparatus is a great auxiliary to the economical generation of gas, and it should be far more extensively used than it is at present. It behooves the superintendents of gas-companies to be on the alert, and to employ any really valuable labor saving appliances, and among these the exhauster, heretofore too much neglected, should surely be included.

## THE WATER-GAS.

We have had frequent occasion to express our opinion in no very complimentary terms, regarding the merits of SANDERS' water-gas, and have repeatedly stated our belief in its utter worthlessness, enunciating our views in the matter, in the most unreserved manner. We have not only questioned its permanence, and its power to retain the luminous hydro-carbon vapors with which it is combined in the retorts, but have doubted any and every of its claims to value, and have ignored *in toto*, its possible employment on a large scale as an illuminator. Our columns have also exposed the fallacy of the figures paraded to prove its superior economy over ordinary coal-gas; and have shown that a demand for the quantity of rosin alone, which would be required to carbonize a supply of gas for but one of our large cities, would almost clear the market of the article, or at all events raise the price to an exorbitant figure.

We would now, however, call the attention of our readers to a letter published in another column, from Mr. SEVERIN, the owner of the water-gas-works at Aurora, Ind., in reply to a note of inquiry which we addressed him when the first rumors of the lighting of that town by water-gas reached us. Notwithstanding our own opinions in reference to the practical operation of the SANDERS process, we desire to present both sides of the question, and in printing the plausible letter of Mr. SEVERIN, we are not to be understood as having changed our views in the least. We publish it simply as a matter of public interest; and while it has the appearance of entire candor and sincerity, the data are not sufficient to induce us to concur in the belief that a complete success has been achieved. It is stated that other places of greater magnitude than Aurora, are to be illuminated with gas made by the SANDERS process. This being the case, an opportunity will soon be

presented for arriving at a definite conclusion as to its merits, and we sincerely hope that these practical tests will settle the vexed question, and that that the controversies growing out of the varying opinions respecting the process, will have an amicable termination.

## DEATH OF WM. W. FOX, ESQ.

While the JOURNAL was in press, the information came to us of the death of WM. W. FOX, Esq., President of the New York Gas-Light Company, which occurred on the evening of 1st March, inst.

Mr. Fox was born in this city on 26th September, 1783, and was consequently in his 78th year, and has filled the office of President of the N. Y. Gas Light Co. nearly 34 years. A brief sketch of his life was published in this JOURNAL, Vol. 1., page 17. He died of congestion of the lungs.

## BUSINESS DEPARTMENT.

The sale of the Astoria, N. Y. Gas-Works is postponed to Wednesday next, 6th, inst at 12 o'clock.

Mr. H. R. WORTHINGTON'S price lists of water-meters and steam-pumps, are advertised to day in the reading columns. The attention of gas and water companies is especially directed to them.

A gas-fitter, in Lewisburg, Pa., applies in to day's JOURNAL for a situation in a gas-works. He will be well recomended.

MR. HARRIS LOUDERBACK, an experienced retort setter and brick layer of Philadelphia advertises his card.

MESSRS. HORNING & HUMPHREY of Philadelphia, have brought out a new chimney for coal-oil lamps. The advantage of this chimney is that it will not break—an essential consideration for housekeepers.

A sale of a large tract of rich coal lands in Kanawha County, Va., is advertised by THOS. L. BROUN Esq. special commissioner.

MR. C. ELTON BUCK, Editor of this JOURNAL is conducting his laboratory business as usual at these rooms, and is prepared to make analyses of all kinds, for merchants and others.

The attention of our readers is directed to the advertisement of the Warren Foundry at Phillipsburgh, N. J., which has been heretofore noticed in our columns, as large manufacturers of water and gas-pipes.

Two Gas-Engineers advertise under the respective initials of K. J. and P. F. T. Their references are in our possession, and are very respectable.

We have received from London, a few copies of the following works, which should be in every gas-engineer's library. The prices are as follows.

| | |
|---|---|
| Bowditch on coal gas | $1.25 |
| Thompson's chemistry of Gas Lighting | 2.00 |
| Report of the Proceedings of the Select Committee of both Houses of Parliament on the Metropolitan Gas-Bill | 3.00 |

### Water-Meters.

Our repeated and urgent solicitations followed up by the recent bursting of the great main on Fifth Avenue, are beginning to wake up the Croton Aqueduct Department, to the necessity of applying meters to the principal outlets of large volumes of water.

By order of the Engineer, a number of Mr. Henry R. Worthington's excellent water-meters have been placed in the various hotels, sugar refineries, large manufactories, &c., the result of which is an important increase in the revenue derived from those establishments, while the actual flow of water is materially reduced.

Some of the hotels have kicked a little at this movement. The St. Nicholas tried the injunction dodge, but were cast with costs. The Smithsonian attempted ditto, and had the pleasure of footing a bill of costs and lawyers' fees. The Fifth Avenue Hotel, on the contrary, with a liberality and fairness characteristic of the proprietors, Messrs. Hitchcock, Darling, & Co., requested when the house was first opened, that a meter be attached, and have cheerfully and promptly paid the established rates for the quantity used.

Legislative authority is necessary for the general adoption of water-meters, which may be acted upon by and by perhaps, when the philosophers at Albany get the gas-companies into line. A little *palm*-istry might hasten this desirable consummation.

## EMPLOYMENT OF GAS AS A TELEGRAPHIC AGENT TO INDICATE THE PRESSURE IN CITIES.

### THE ELECTRO-MAGNETIC INDICATOR OF THE MAXIMUM AND MINIMUM PRESSURE.

PARIS, 24th April, 1859.

*To the Editor of the Journal de l'Eclairage au Gaz:*

I count upon your fairness and impartiality to rectify in your next number, some ambiguous passages which appear in the article of M. Le Roux, and in the letter of M. Thévenet, inserted in the number of the 20th (April, 1859,) of your journal.

The sub-title,—"*the electro-magnetic indicator of the maximum and minimum pressure,*" placed above the plate which represents the apparatus of M. Giroud, appears to be applied to that apparatus, whilst it is the name of my system. This rectification, which has only the appearance of *paternal love*, is more important than the typographer believes; each one endeavors to preserve his name!

I claim to be the inventor of the electro-magnetic indicator, and only include the contest of priority which is due me, not having the pretention of automatically regulating the pressure as M. Giroud represents, but simply to indicate by means of different signals, the moment when the pressure varies; and then by means of an inversion of the current determined by a commutator, which *I claim* also to have invented, which alone permits the use of one wire, and which, with its action on the magnetized needle, forms the basis of my system.

It is this which makes it difficult to understand the following sentence from the letter of M. Thévenet.

"It is well to observe that a slight modification in the arrangement of the manometer, transforms this apparatus into a commutator, and permits the employment of only one telegraphic wire, instead of two, &c."

It would have been well, also, to add that this application to indications of pressure and of level, (which M. Thévenet regards a "*slight modification*") of a principle in physics, of which the employment of only one telegraphic wire is *essential*, it would have been well, I say, to have given this application as belonging to M. Servier, and not to M. Giroud. *Suum cuique.*

The system of M. Giroud is applicable solely to the regulation of the pressure of gas, while this regulation of pressure is not one of the applications of my system, which adapts itself to all indicators, vertical or circular, of which it will signalize two extreme positions a long distance off, by the same play of this indicator and by different signals, by means of one wire.

Moreover, the value of the two systems may be compared by an experienced operator in reading the descriptions of each one of them, which were published in the numbers of 20th of March, and 10th and 20th of April, of *Le Gaz*, and in the *Journal de l'Eclairage au Gaz* of April 20, (1859). I will dispense with prolonging a polemical argument which my occupations will not permit me to follow. If it is a question of priority which it is wished to bring out, it is not in the columns of a journal, but before competent tribunals where it should be made clear, and I do not fear to leave it to the wisdom of their decision.

Accept, Mr. Editor, the assurance of my distinguished consideration.

ED. SERVIER, *Civil Engineer.*

BAD VENTILATION AND DRUNKENNESS.—It has been related, remarks the *Laborer's Friend*, by a person employed by the City Missionary Society of London, whose duties lead him among the inhabitants of St. Giles' parish, that there was scarcely any one of them who might not obtain a comfortable livelihood if he could leave off gin. But it had been shown that many of these persons had been driven to this liquor as affording a temporary relief to the feelings of depression and exhaustion caused by living in a noxious atmosphere; and instances have been known of individuals, who, when they were enabled to reside in a less crowded and healthier locality, where pure air was attainable, spontaneously abandoned the practice of gin drinking. Adopting this view, the number of gin places which flourish in the metropolis, not only show a tendency to tippling, but also point out the conditions of the habitations of the great bulk of those who frequent these gin shops.—*London Builder.*

## LEGAL RECORD.

### THE WATER-GAS WAR IN PHILADELPHIA, PA.

COMMON PLEAS—JUDGE THOMPSON. *Preibury, Sykes & Co.*, vs. *The City of Philadelphia*—This case, which comes before the Court on the motion of the defendants, on behalf of the Trustees of the Philadelphia Gas-Works, to dissolve the injunction heretofore granted, was again taken up last week. It has been partially argued before, and there was some question as to the necessity for continuing the argument, in view of the prospective closing of the Girard House. But neither party seemed willing to recede, and the argument proceeded, but was not finally closed. The case narrowed itself down at last, and Judge Thompson called the attention of Mr. Hirst, who has the conclusion, to the point whether or not, under the regulations of the Gas Company, which allow the consumer of gas to become the purchaser of meters, the Trustees have any power to remove them.

No time was fixed for the resumption of the argument.

### MOTION FOR AN INJUNCTION TO RESTRAIN THE CROTON BOARD FROM CUTTING OFF SUPPLIES OF WATER.

SUPREME COURT—CHAMBERS.

Before Justice Leonard.

*The Proprietors of Smithsonian House* vs. *The Croton Aqueduct Board.*—This was a motion for a preliminary injunction to restrain the defendants from cutting off the supply of Croton water from plaintiffs' hotel, corner of Broadway and Houston Street.

It appears that the board charged the plaintiffs for water at certain specified rates, which made the aggregate amount of their bill higher than if they had charged the plaintiffs the regular hotel rates. To this the plaintiffs demurred, claiming that the house was a hotel, and should not be charged more than the hotel rates.

The defendants threatened to cut off the water, and the plaintiffs brought this suit.

The defendants contend that they have charged no more than by law they are entitled to charge. The Court decided that there was no ground for an injunction and therefore deny the motion with $10 costs.

Chas. H. Smith for plaintiffs; H. H. Anderson for defendants.

## CORRESPONDENCE.

### THE WATER-GAS.

*To the Editor of the* AMERICAN GAS-LIGHT JOURNAL:

AURORA, IND., February 9, 1861.

Your favor of the 2d is received, enquiring as to "the results of the water-gas works said to have been erected at this place," and in reply I will give you all the information in my power as to the working of Sanders' Water-Gas. Without any experience in the gas business, I erected these works here, and commenced supplying consumers with gas, Dec. 27.* Although my works are imperfectly put up, yet they will show great economy and superiority over coal-gas, especially where the best coal cannot be readily obtained without high cost. Since Dec. 27th, my works have been in daily operation, supplying the consumers with a gas much more brilliant than the ordinary coal-gas. I have 7,000 feet of street mains, of 4 inch, 3 inch, and 2 inches diameter, with 52 consumers, and requiring about 4,000 cubic feet of gas every day. With 2,000 feet of 2 inch street mains more, and the times a little better than now, I can increase the number of consumers to 120, which will give then a consumption of from 8,000 to 10,000 cubic feet daily. I have only one bench of three small retorts, which all three hold, when charged, about five bushels of charcoal, and are capable to make 20,000 cubic feet of gas in 24 hours, allowing four hours for charge of labor and charging. We make our daily amount of 4,000 cubic feet of gas from two to six o'clock in the afternoon.

The carbonizing of the water-gas, or rosin used here in my imperfect works, has been forty pounds on the average for 1,000 cubic feet; but I hold that that can be reduced, with works put up by experienced men, and with some improvements in the bench, as I have had days when I made very good gas with only 21 pounds of rosin for 1,000 cubic feet. I sell gas here at $3 per 1,000 feet, and with a consumption of 4,000 feet daily, make more profits than coal gas works would with the same amount. There is the purifying of coal-gas, which is very costly in some places; such cost is avoided by water-gas. I have no purifiers, and don't intend to use

any, as the gas burns very well without being purified; and the talk of some people that it would carry rosin oil or tar over and choke the mains and gas-pipes in the buildings, is pretty well stopped, *as it don't do it*. There is also very little condensation. I have only three drips on the whole length of street mains, and two of them, the one on the in and outlet of the holder, and the other on remote ends of mains, have showed only water, and very little of that; one of the drips, draining 450 feet of 3-inch pipe, and about 1700 feet of 2-inch main, has never shown any water yet. There is another advantage in the water-gas. You don't need to build the works on the outskirts of towns, for they can't make a water-gas-works to be a nuisance, as they have a rather good smell. My works here are allowed in the centre of the town, and my neighbors don't find anything offensive; they like the smell very well.

In regard to carbonizing material, I want to say that I *will dispense with rosin altogether*, as I have made experiments with other materials, and find them cheaper than rosin, and at the same time make better gas than rosin; *in fact the most brilliant gas I have ever seen*. I shall get you posted on this material, and the results of the same, as soon as I shall have used it for two weeks. I will also give you any other information requested within my power.

I have also to acknowledge that I am the whole stock company myself, and own the entire works myself. I fill the offices of President, Board of Directors, Superintendent, Inspector, and Chief-Engineer. I have no other expense than that of making the gas, and don't pay salaries for fat offices. I am a practical mechanic, and in no way interested outside of my gas-works, and the county for which I have bought the patent right. I am glad to receive visitors. A good many have been here, and every one is welcome. Send all you please, and come yourself.

Hoping, sir, that I have done all you wished me to do, I remain

Yours, most respectfully,

JULIUS SEVERIN.

## ELECTRO-MAGNETIC INDICATOR.

PARIS, FRANCE, January 25, 1861.

*To the Editor of the* AMERICAN GAS-LIGHT JOURNAL:

I read in the January 1st number of your estimable JOURNAL, the translation of an article from the *Journal de l'Eclairage au Gaz*, on the electric regulator of M. Giroud. As this article raises a question of priority in comparing the electro-magnetic monitor of pressure, of M. Giroud, I rely upon your impartiality to reproduce my response to that article, which was inserted in the number of May 5th, 1859, of the *Journal de l'Eclairage au Gaz*.

My invention not having been patented in America, you will see that my reclamation is only a question of delicacy which makes me desire above all things (*me fait vivement de tirer*), not to be regarded as an infringer, especially in a country where my name is not known. You will acknowledge, moreover, I am certain, that as an act of justice, where an accusation is published, the defense should likewise appear.

That you may know, also, before forming an opinion in the case, I have taken the liberty of addressing you in explanation of the notice of my electro-magnetic manometer, which I have published.

Accept, sir, the assurance of my most distinguished consideration.

E SERVIER,

*Engineer of the Paris Gas-Light Co.*

[According to the request of M. Servier, we print on another page, the article from the *Journal de l'Eclairage au Gaz*, referred to in his letter. The paper with illustrations, giving a description of M. Giroud's apparatus, may be found on page 201 of this volume.—ED.]

## ON TESTING GAS-METERS.

GAS-WORKS, P———, Feb. 19, 1861.

*To the Editor of the* AMERICAN GAS-LIGHT JOURNAL:

Can you inform me where I can find full, clear, and detailed instructions for testing gas-meters. There are some hints scattered through the *Journal of Gas-Lighting*, but I have not all the volumes. Mere hints are not what many of us want, but the *full particulars*, and the *rationale* of the operation. I am not satisfied with the method of testing meters in this country, and wish the best information I can get to assist me in a little practical working myself, that I may know when the thing is properly done. If you should think favorably of it, will you not suggest to some one of your practical correspondents to furnish an article or two, as the case may require, for your paper. If you had witnessed some attempts at testing, which have passed under my observation, you would say that truly something ought to be done. I am not the only ignoramus on this subject, I assure you. Please do something to enlighten us in this matter, and oblige

Q.

* The manufacture of the water gas was commenced, as we are informed, at Mr. Severin's works, under the immediate supervision of LEWIS COVELL, JR., of this city.—ED

## ANSWERS TO CORRESPONDENTS.

Student, of Miss.—*You cannot obtain the knowledge from books alone. You want practical experience, and a facility in handling the implements, to give you the proficiency you desire. Your ambition is laudable, and we trust your hopes may be realized. From the tone of your letter you seem to be made of the right sort of stuff, and probably you will exemplify the old adage, "where there's a will there's a way."*

X. Y. Z., of Tenn.—*We are disposed to award the term "Father of gas lighting," to William Murdoch, who was the first man who applied gas to practical use as an illuminating agent. Some French writers attribute the utilization of gas to Philip Le Bon, the date of whose experiments is not fully known. Murdoch's claims to this distinction, however, are the best authenticated, and he is justly entitled to the honor of being the pioneer in this wholesome reform.*

W. H. K., of Vt.—*The visible deterioration of gas during extremely cold weather, is caused by the condensation of the volatile hydro carbon vapors, which form the most luminous parts of gas. In warmer climates this does not occur, but in the latitude of your vicinity you may expect such results frequently.*

## WHERE GAS-WORKS AND WATER-WORKS ARE WANTED.

We are now publishing regularly the names of the thirty thousand post-towns in the United States, so that builders of gas-works and water-works, and the various manufacturers may see where are new openings for business. And as each post master will receive several copies of the AMERICAN GAS-LIGHT JOURNAL, for distribution, the number thus circulated will probably exceed *Three Million Copies. What a chance for advertisers!*

## POST-OFFICE TOWNS IN THE UNITED STATES.

ARRANGED BY STATES AND COUNTIES,

**Shewing where Gas-Works and Water-Works are Wanted**

### ILLINOIS.

100 Counties, 1,482 Towns, 13 Gas-Works, 1 Water-Works.

(*Concluded from page 247.*)

**Platt County.**

| | | |
|---|---|---|
| Bement, | Cerro Gordo, | Piatt. |
| Centerville, | *Monticello*, (c. h.,) | |

**Pike County.**

| | | |
|---|---|---|
| Atlas, | Griggsville, | Nebo, |
| Barry, | Kinderhook, | Pearl, |
| Bedford, | Martinsburgh, | Perry, |
| Chambersburg, | Milton, | *Pittsfield*, (c. h.,) |
| Detroit, | Montezuma, | Pleasant Hill, |
| El Dara, | Monument, | Pleasant Vale, |
| Fishhook, | New Hartford, | Rockport, |
| Florence, | New Maysville, | Summer Hill, |
| Gilgal, | New Salem, | Time. |

**Pope County.**

| | | |
|---|---|---|
| Allen's Springs, | *Golconda*, (c. h.,) | Walnut Shade, |
| Breckinridge, | New Liberty, | Wool, |
| Broad Oak, | Rock. | Zion Hill. |
| County Line, | Rock Quarry, | |

**Pulaski County.**

| | | |
|---|---|---|
| Ash Ridge, | Mound City, | Walbridge, |
| Burkeville, | Ullin, | Wetaug. |
| Caledonia, | Valley Forge, | |

**Putnam County.**

| | | |
|---|---|---|
| Florid. | Magnolia, | Oxbow, |
| Granville, | Mount Palatine, | Snackwine. |
| *Hennepin*, (c. h.,) | | |

**Randolph County.**

| | | |
|---|---|---|
| Bremen, | Evansville, | Preston, |
| Chester, | Jones' Creek, | Red Bud, |
| Cobb, | Jordan's Grove, | Rums, |
| Coultersville, | *Kaskaskia*, (c. h.,) | Shiloh Hill, |
| Dog Wood, | Laurel Hill, | Sparta, |
| Ellis Grove, | Prairie du Rocher, | Steel's Mills. |

**Richland County.**

| | | |
|---|---|---|
| Bon Pas, | Dundas, | Parkersburg, |
| Boot, | Fransonia, | Stringtown, |
| Calhoun, | Noble, | Wakefield, |
| Clermont, | *Olney*, (c. h.,) | Wilsonburgh. |

**Rock Island County.**

| | | |
|---|---|---|
| Buffalo Prairie, | Hampton, | Pleasant Ridge, |
| Camden Mills, | Haslett, | Port Byron, |
| Carbon Cliff, | Illinois City, | Prairiefield, |
| Coal Valley, | Izoria, | Rapids City, |
| Copper Creek, | Mercia, | *Rock Island*, (c. h.,) |
| Cordova, | Mill Creek, | Rural, |
| Drury, | Moline, | Watertown. |
| Edgington, | Pennsylvania, | |

**St. Clair County.**

| | | |
|---|---|---|
| *Belleville*, (c. h.,) | Lenzburg, | O'Fallan Depot, |
| Caseyville, | Lively, | Prairie de Long, |
| Fayetteville, | Marissa, | Risdon, |
| Frosburgh, | Massoutah, | Shiloh, |
| French Village, | Millstadt, | Smithton, |
| Illinoistown, | Mud Creek, | Summerfield. |
| Lebanon, | | |

**Saline County.**

| | | |
|---|---|---|
| Eldorado, | Hartford, | Somerset, |
| Gallatin, | Mitchellsville, | South America, |
| Harrisburgh, | *Raleigh*, (c. h.,) | Stone Fort. |

**Sangamon County.**

| | | |
|---|---|---|
| Auburn, | John's Creek, | Rochester, |
| Bates, | Loami, | Salisbury, |
| Berlin, | Mechanicsburgh, | *Springfield*, (c. h.,) |
| Carter, | Pawnee, | Wa son, |
| Chatham, | Pleasant Plains, | Williamsville, |
| Dawson, | Reed, | Woodside. |
| Illiopolis Station, | Richland, | |

**Schuyler County.**

| | | |
|---|---|---|
| Birmingham, | Fredericksville, | Rushville, |
| Brooklyn, | Huntsville, | Sheldon's Grove, |
| Browning, | Jasper, | Steam Mill, |
| Camden, | Littleton, | Sylva, |
| Doddsville, | Mont Meacham, | Wayland, |
| Erwin, | Pleasant View, | Woodland. |

**Scott County.**

| | | |
|---|---|---|
| Exeter, | Manchester, | *Winchester*, (c. h.) |
| Glasgow, | Naples, | |

**Shelby County.**

| | | |
|---|---|---|
| Big Spring, | Moweaqua, | *Shelbyville*, (c. h.,) |
| Cold Spring, | Oconee Station, | Westminster, |
| Mode, | Prairie Bird, | Windsor. |

**Stark County.**

| | | |
|---|---|---|
| Bradford, | La Fayette, | *Toulon*, (c. h.,) |
| Camp Grove, | Oceola, | Valley, |
| Dorrance, | Pleasant Green, | West Jersey, |
| Elmira, | Slack Water, | Wyoming. |

**Stephenson County.**

| | | |
|---|---|---|
| Buena Vista, | Lena, | Rudolts, |
| Cedarville, | Loran, | Rock Grove, |
| Dakota, | Louisa, | Rock Run, |
| Damascus, | McConnell's Grove, | Silver Creek, |
| Davis, | Nevada, | Waddam's Grove, |
| *Freeport*, (c. h.,) | New Erin, | Winnebago, |
| Howardsville, | Oneco, | Winslow, |
| Jackson, | Orangeville, | Yellow Creek. |
| Kent, | | |

**Tazewell County.**

| | | |
|---|---|---|
| Armington, | Dillon, | Pekin, |
| Bellflame, | Groveland, | Spring Lake, |
| Boynton, | Hopedale, | *Tremont*, (c. h.,) |
| Circleville, | Little Detroit, | Washington, |
| Deer Creek, | Mackinaw, | Wesley City. |
| Delavan, | Norton, | |

**Union County.**

| | | |
|---|---|---|
| Anna, | Mount Pleasant, | Union Point, |
| Dongola, | South Pass, | Western Saratoga. |
| *Jonesboro*, (c. h.,) | Toledo, | |

**Vermillion County.**

| | | |
|---|---|---|
| Blue Grass, | Higginsville, | North Fork, |
| Catlin, | Indianola, | Pilot, |
| Conkey's Store, | Jordan, | Prospect City, |
| *Danville*, (c. h.,) | Kentucky, | Richardson, |
| Essex, | Marysville, | Ridge Farm, |
| Fairmount, | Myersville, | Ten Mile Grove. |
| Georgetown, | | |

**Wabash County.**

| | | |
|---|---|---|
| Armstrong, | Gard's Point, | New Hope, |
| Friend Grove, | Mier, | Rochester Mills, |
| Friendsville, | Mount Carmel, | Sloam. |

**Warren County.**

| | | |
|---|---|---|
| Berwick, | Greenbush, | Roseville, |
| Cane Run, | Ionia, | Spring Grove, |
| Cameron, | Little York, | Swan Creek, |
| Denny, | Monmouth, | Utah, |
| Duck Creek, | New Lancaster, | Young America. |
| Ellison, | | |

**Washington County.**

| | | |
|---|---|---|
| Ashley, | Hoyleton, | Osborn, |
| Dubois, | *Nashville*, (c. h.,) | Plum Hill, |
| Elk Horn, | Okaw, | Richview |

**Wayne County.**

| | | |
|---|---|---|
| Black Oak, | Johnsonville, | New Franklin, |
| Blue Point, | Keenville, | New Massillon, |
| Brush Creek, | Long Prairie, | Pin Oak, |
| Enterprise, | Maunding's Mills, | Pleasant Grove, |
| Fairfield, | Morlan's Grove, | Wabash, |
| Hopkins' Grove, | Mount Erie, | Zif. |
| Jeffersonville, | New Baltimore, | |

**White County.**

| | | |
|---|---|---|
| Burnt Prairie, | Enfield, | Phillipstown, |
| *Carmi*, (c. h.,) | Grayville, | Rattlesnake, |
| Duncanton, | Mill Shoals, | Roland, |
| Emma, | | |

**Whiteside County.**

| | | |
|---|---|---|
| Albany, | Hemlo, | New Jordan, |
| Clyde, | Jefferson's Corners, | Portland, |
| Como, | Kingsbury, | Prophetstown, |
| Empire, | Lyndon, | Round Grove, |
| Erie, | Morrison, | Spring Hill, |
| Fulton, | Mount Prospect, | Sterling. |
| Garden Plain, | New Clyde, | Summit Hill. |
| Genesee Grove, | New Genesee, | |

**Will County.**

| | | |
|---|---|---|
| Arnon, | Green Garden, | Pierce, |
| Channahon, | Hadley, | Plainfield, |
| Chelsea, | Joliet, | Spencer, |
| Crete, | Lillecash, | Tracy, |
| Dupage, | Lockport, | Tamarack, |
| East Wheatland, | Long John, | Wallingford, |
| Elwood, | Mokena, | Wheatland, |
| Emor, | Moree, | Wilmington. |
| Gooding's Grove, | Peotone, | |

**Williamson County.**

| | | |
|---|---|---|
| Attila, | Fredonia, | Saline, |
| Bainbridge, | Lake Creek, | Sarahsville, |
| Blairsville, | Locust Grove, | Sugar Creek, |
| Bolton, | *Marion*, (c. h.,) | Sulphur Springs. |
| Crab Orchard, | Prairie Hill, | |

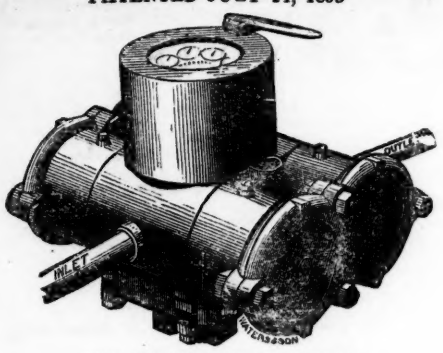
**Winnebago County.**

| | | |
|---|---|---|
| Burritt, | Harrison, | Rockton, |
| Cherry Valley, | Kishwaukee, | Roscoe, |
| Clairville, | Laona, | Shirland. |
| Durand Station, | New Milford, | South Bend, |
| Elida, | Pecatonia, | Tyler, |
| Harlem, | *Rockford*, (c. h.,) | Winnebago Depot. |

**Woodford County.**

| | | |
|---|---|---|
| Cruger, | Low Point, | Secor, |
| El Paso, | Metamora, | Spring Bay, |
| Eureka, | Minonk, | West Britain, |
| Farmsville, | Panola Station, | Woodford. |
| Hopps, | Roanoke, | |

## H. R. WORTHINGTON'S WATER-METERS.
PATENTED JULY 24, 1855




SIZES AND CAPACITIES OF METERS.

| Size of opening. | Greatest proper quantity per minute. |
|---|---|
| ¾ inch pipe | 1 cubic foot, or 7½ galls. |
| 1 " " | 4 " " 30 " |
| 2 " " | 8 " " 60 " |
| 3 " " | 20 " " 150 " |

RETAIL PRICE LIST.

| | | | |
|---|---|---|---|
| ¾ inch pipe, | $ 22 50 | Box and cartage, | $1 00 |
| 1 " " | 60 00 | " " | 1 50 |
| 2 " " | 87 50 | " " | 2 00 |
| 3 " " | 165 00 | " " | 3 00 |

The boxes are permanent receptacles for the protection of the meters, with screws and hinges.

A liberal discount made to water-works.

H. R. WORTHINGTON,
61 Beekman street, New York.


## WASHINGTON, D. C. AQUEDUCT.

The following letter confirms our notice to the same effect, in the last number of the JOURNAL.

U. S. ENGINEER DEPARTMENT,
*Washington, February* 21, 1861.

Capt. M. C. MEIGS,
*Corps of Engineers*, Washington.

CAPTAIN: By direction of the Secretary of War, you are assigned to the charge of the completion of the Washington Aqueduct, and you will enter upon the duty without delay, relieving Lieut. Morton therefrom.

Lieut. Morton has been instructed to deposit all funds in his hands belonging to the aqueduct with the Treasurer of the United States, to the credit of the appropriation, and to send the receipt therefor to this office, with his final accounts.

Very respectfully, Captain, your obedient servant,
JOSEPH G. TOTTEN,
Bvt. Brig. General and Colonel of Engineers

COAL IN CALIFORNIA.—Some fine specimens of coal, resembling in appearance the West Hartley coal, are on exhibition in San Francisco, purporting to have been brought from a newly discovered mine about eighty miles from Carson Valley, where a company have claimed three hundred acres of land covering the mine, and are preparing to commence developing it. Coal is very much needed in the Washoe silver mines, as other kinds of fuel for smelting purposes are scarce and difficult of access. The Keystone Company, who have been some months engaged in opening a copper mine in Calaveras County, claim to have struck recently the richest vein ever discovered on the Pacific coast, being nearly as pure the best virgin copper of Lake Superior. The vein was struck thirty-five feet below the surface, and appears to be inexhaustible. Arrangements are making to ship the ore to Baltimore, and it is believed it can be put in the Eastern markets cheaper than the Lake Superior circle.

GALVESTON, TEXAS.—S. R. Dickson is builder of the gas-works. Mr. Dickson is well known as the gentleman who did *not* build the people's (opposition) gas-works, at Chicago, Ill. Iron retorts are used. Down's meters *in toto*, and George W. Kraft's gas-holder. This company have neither a photometer nor exhauster but they use gas thermometers. Length of mains about 10 miles, from 8 to 3 inches diameter. Newcastle caking coal is carbonized, costing $9.07 per 2240, lbs. The company is out of debt and has a surplus, and is managed by Alfred F. James, the President, one of the most enterprising and public spirited men in Texas.

MUSCATINE, IOWA.—Gas-works built by S. S. Ashcraft, Cincinnati, O., and reported to be perfectly satisfactory. Are testing clay retorts, having heretofore used iron ones from Ashcraft's. Meters from Code, Hopper & Gratz. Gas-holder from George Stacey, Cincinnati. No photometer nor exhauster. Use Illinois coal, costing 12 cents per bushel of 80 lbs., or $2 80 per ton of 2,240 lb. Cheap enough, in all conscience.


## PRICE LIST OF R. H. WORTHINGTON'S SAFETY STEAM-PUMPS.

SINGLE PUMP—PATENT OF 1849.

| SIZES. | Diam. of Steam Cylinder in inch's | Diam. of Plunger in inches. | Length of stroke in inches. | Capacity in Gall's per minute. | Price. |
|---|---|---|---|---|---|
| No. 1.... | 3¾ | 2¼ | 3 | 10 | $ 75 |
| " 2.... | 5 | 3 | 6 | 30 | 150 |
| " 3.... | 6½ | 4½ | 9 | 75 | 275 |
| " 4.... | 12 | 6 | 9 | 135 | 325 |
| " 5.... | 12 | 7 | 9 | 185 | 325 |
| 2d pattern " "... | 16 | 7 | 9 | 185 | 350 |
| " 6.... | 12 | 10¼ | 9 | 400 | 400 |
| 2d pattern " "... | 16 | 10¼ | 9 | 400 | 475 |
| 3d pattern " "... | 18½ | 10¼ | 9 | 400 | 450 |
| " 7.... | 12 | 14 | 9 | 600 | 525 |
| 2d pattern " "... | 16 | 14 | 9 | 600 | 550 |
| 3d pattern " "... | 18½ | 14 | 9 | 600 | 600 |

N. B.—In case of fire or other emergency, the delivery above stated may be increased to double the quantity. To the trade a discount is allowed.

Prices of the DOUBLE PUMP will be given in an early number of this JOURNAL.

H. R. WORTHINGTON,
61 Beekman St.,
New York.


EXTRAORDINARY FLOW OF OIL.—A gentleman who has just returned from the oil region, informs us that about three weeks ago the men engaged in boring one of the Economite wells, at Tideout, struck at the depth of ninety-eight feet a vein of oil and gas, so powerful that it was thrown up some seventy feet above the surface. Such an extraordinary flow of oil was never before seen even in the Tideout region, so fruitful of surprises of this character. Not more than one-third of it was secured, yet up to Wednesday morning, one hundred and forty-nine barrels had been taken up, while the vat capable of holding two hundred and fifty barrels, was one third filled. Altogether, some two hundred and thirty-two barrels were secured, and the flow still continues.

NEW CEMENT.—Professor Edmund Davy, lately read a paper to the Royal Dublin Society, on a cement which he obtains by melting together in an iron vessel two parts (by weight) of common pitch, with one part of gutta percha. It forms a homogeneous fluid, which is much more manageable for many useful purposes than gutta-percha alone, and which, after being poured into cold water, may be easily wiped dry, and kept for use. The cement adheres with the greatest tenacity to wood, stone, glass, porcelain, ivory, leather, parchment, paper, feathers, silk, woolen, cotton, &c.

DEATH OF MR. KEATS.—Clarence G. Keats, nephew of John Keats, the English poet, died in Evansville, Indiana, recently, of consumption, in his thirtieth year. Mr. Keats was President and Engineer of the Evansville, Ind. Gas-Light Company.

SUFFOCATION TO DEATH IN A GAS MAIN.—The Imperial Gas Company are running a large three feet main from Sloane street across Hyde Park, a portion of which, about 90 feet in length, passes under the Knights-bridge-road, near Albert Gate. The joints of the mains are first caulked with pitched yarn as tightly as possible; upon this caulking a thick coating of molten lead is run, which is hammered close into the joint by a peculiarly shaped chisel. With the view, however, of making the mains gas-proof, there is a further process of filling the inside portion of the joint with Roman cement. To enable the two operations of cementing inside and lead-jointing outside to be carried on simultaneously, the man who cements is obliged to work several "lengths" up the main, beyond where the outside work is going on, so that the blows of the hammer wedging in the lead, will not shake the cement by percussion, which may be the case if the two kinds of work were being done too near each other. The main is made up of 12 feet lengths, and the cementing men will sometimes be working a couple of hundred feet from the open end of the street. It was while so engaged that the man was suffocated. The coroner's jury returned a verdict that the deceased was suffocated by the inhalation of coal gas, and adopted a suggestion of the coroner, that men should not be allowed to work inside more than six lengths of pipe in future.—*London Builder.*

## Things Ancient, Quaint and Rare.

### THE BREWERS' COMPANY OF LONDON.
### No. 2.

The same year (1422) furnishes an example of the city's control in what may be termed the impressment of the companies into the public service. It states that in—

"1422, Parliament having enacted that all the weirs or 'rydells,' in the Thames between Staines and Gravesend, and Queensborough, should be destroyed, the mayor and common council ordained that two men from each of the twenty-six crafts should go out with the mayor for this business. With the brewers were joined six other crafts, viz., the girdlers, fletchers, salters, barbers, dyers, and tallow-chandlers, who were all to go in *one barge*. The fletchers excusing themselves as being too busy on account of preparing "artillery" for the king, (who was then in France,) were permitted to find substitutes, and make payment.

"Thomas Grene and Robert Swannefeld were chosen on this occasion to go up to Kingston on the part of the brewers, who spent 13*s.* 4*d.*; and Robert Carpenter and John Mason, to go to Gravesend, who spent 20*s.*; each having a reward of 6*s.* 8*d.* They moreover paid to the chamberlain 56*s.* for three workmen twenty-eight days, and by order of the mayor levied the amount on the craft for this purpose; but which (it is added) was with difficulty collected."

The system of bribery is entertainingly illustrated by the following entries:—

1422-3.—A note (in Latin,) that William Walderne (mayor in that year) behaved well to the company, until two or three weeks before his retirement from office; when, beginning to annoy them, they "assauged his displeasure" by presenting to him "a *boar*, price 20*s.*; and an *ox*, price 17*s.*"

Whittington himself is stated to have received a douceur through his servant, in an item of expenditure in the warden's accounts afterwards; which debits the company, £7 3*s.* 4*d.* "for ii pipes of red wyne to Richard Whetyngton's butler." For a succeeding mayorality another sum of £13 6*s.* 8*d.* is charged "for gyfts to the lord maior." Other entries record the receiving of presents of different kinds, both by the chief magistrate and his officers; or speak of such gifts as customary compliments to obtain favour. Thus we find in 1423, an entry of "money given to divers serjeants of the maior, for to be good friends to our craft," or, as it is afterwards worded, "for their labor to the profit of the craft." Mention is also made of £16 "given to a tasker of the king's, to suffer our carpenters still in our work;" (who were artisans employed at this time in the repairs of the company's hall, and were liable to be impressed for the king's works.)

1424.—"A record in praise of John Michelle." He was mayor this year; and, though a receiver of presents, like his predecessors, is eulogised, because "he was a good man, and meek and soft to speak with. When he was sworn into office, the brewers gave to him an *ox*, that cost 21*s.* 2*d.*, and a *boar*, price 30*s.* 1*d*; so that he did no harm to to the brewers, and advised them to make good ale, that he might not have any complaint against them."

The preceeding year, 1423, affords an example of a mayor, who would *not* take a bribe. The entry is in these words:—

"William Crowmere, mayor this year, was a good man, and well pleased all the cititzens, especially the brewers; when the masters offered gifts to him he thanked them, but would not receive any."

A long notice in Latin describes the character and behaviour to the company of Robert Chichely, mayor in 1423, who, it is said, "always treated the brewers well, and early exhorted them to due dilligence in their craft, and to prevent transgressors." It concludes with mentionting a curious regulation made by him as to the beer trade of the time. "That retailers of ale should sell the same in their houses in pots of '*peutre*,' sealed and open; and that whoever carried ale to the buyer should hold the pot in one hand and a cup in the other; and that all who had pots unsealed should be fined."

# KING BROTHERS,

## STOURBRIDGE, ENGLAND, FIRE-BRICK AND RETORT WORKS.

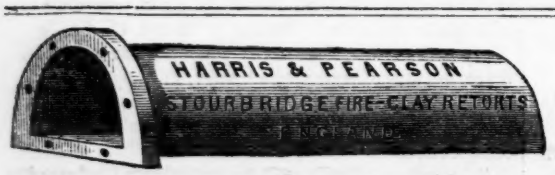
KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for Burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning thus rendering them

FREE FROM CRACKS AND CORRECT IN FORM.

By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize

RETORT OVENS, FIRE-BRICKS, GUARDS, SADDLES, RABBITTED BURS, FLUES, AND QUARRIES, ARE ALL MANUFACTURED OF THE SAME QUALITY OF CLAY.

**EVERY RETORT AND BRICK IS BRANDED "KING BROTHERS, STOURBRIDGE."**




# HARRIS & PEARSON,

PROPRIETORS OF

## BEST GLASS-HOUSE POT, AND CRUCIBLE CLAY.

**Manufacturers of Fire-Bricks, Gas-Retorts, and Glass-House Furnace-Bricks of every description.**

AMBLECOTE FIRE-CLAY AND BRICK WORKS, STOURBRIDGE, ENGLAND.

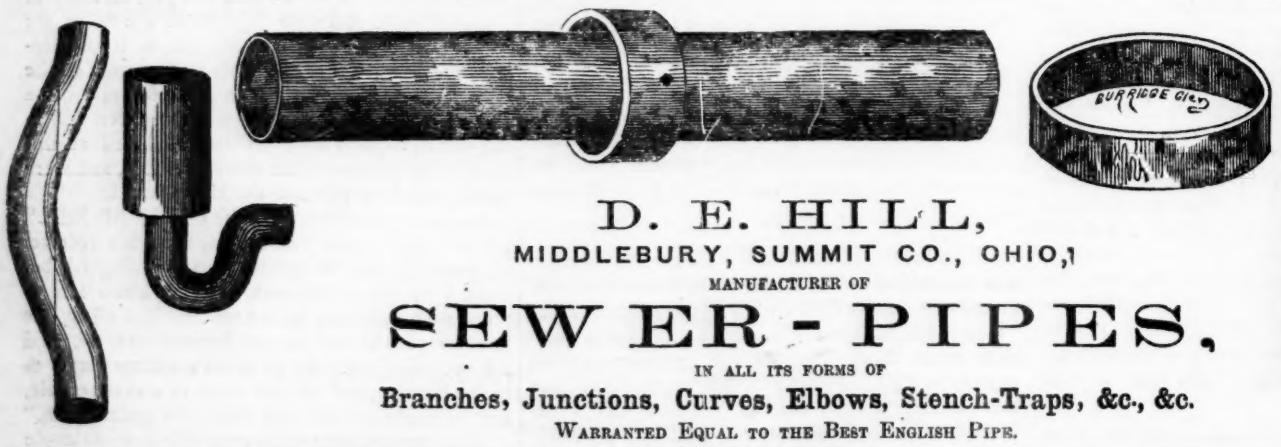
# CODE, HOPPER & GRATZ,

1500, 1502 and 1504 FILBERT-St., PHILADELPHIA.

MANUFACTURERS OF

**Pressure Registers, Pressure Indicators, Pressure Gauges, Photometers, Governors, Station Meters, Customer Meters, (Wet and Dry,) Experimental Meters, (Wet and Dry,) Show Meters, (Wet and Dry,) Meter Provers, Centre Seals, &c.**

The high reputation which we have enjoyed for more than twenty-two years, and the fact that we have manufactured a greater number of Gas-Meters than all other manufacturers in this country combined must present itself as a security to parties desirous of securing the most reliable instruments. Having completed a most extensive addition to our Factory, and added many important improvements to our machinery, we are enabled to fill orders entrusted to us with dispatch, and in all cases *Guarantee Entire satisfaction.* Our Patent Rotary-Valve Dry Gas-Meter is now used by upwards of Two Hundred Gas Companies, giving general satisfaction; we therefore recommend it, believing itsuperior to any other Dry Gas-Meter manufactured. All Meters tested separately by a sworn Meter-Inspector, and sealed when desired.




# D. E. HILL,

MIDDLEBURY, SUMMIT CO., OHIO,

MANUFACTURER OF

# SEWER-PIPES,

IN ALL ITS FORMS OF

**Branches, Junctions, Curves, Elbows, Stench-Traps, &c., &c.**

WARRANTED EQUAL TO THE BEST ENGLISH PIPE.

THE

# STERLING GAS-REGULATOR

**Improves the Light, and Saves a Large per centage of Gas.**

MANUFACTURED BY THE

## WHEELER & WILSON SEWING-MACHINE COMPANY.

It is well known that Printers require the best and most brilliant light. In proof of the superiority of these Machines over all others, the following New York establishments are using them, and testify to their excellence:—New-York Times, New-York Herald, New-York World, New-York Tribune, New-York Sun, Journal of Commerce, Courier & Enquirer, Evening Post, The Zeitung, Dispatch, Leader, Scientific American, Advertiser and Spectator, Independent, Daily News, Harper's Monthly and Weekly, Transcript, Mercury, Atlas, Life Illustrated, Albion, Spirit of the Times, AMERICAN GAS-LIGHT JOURNAL, Christian Enquirer, Churchman, Church Journal, Christian Advocate, Christian Ambassador, Christian Intelligencer, Observer, Sunday Times, Sunday Courier.

By order of the New York and Brooklyn Common Councils, these Regulators are now used in the City Halls, Police Stations, Markets, and other Public Buildings in both cities.

**They are Warranted by the**

**WHEELER & WILSON SEWING-MACHINE CO.,**

**505 BROADWAY, NEW-YORK,**

To keep in order, and always maintain the pressure of the Gas at the lowest point for a brilliant light, and economical combustion. They are so constructed that under no circumstances can the Mercury get into the Meter, or in any way injure them.

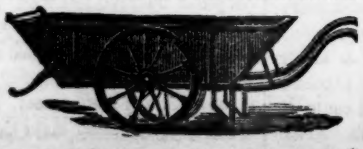
## MISCELLANEOUS.

**PHOTOMETER APPARATUS** and Room for Sale.—The Room is about 6 feet wide by 12 feet long, painted blace inside and screwed together. It can be taken down and boxed for transportation. All the pipes and fittings are complete for immediate use. Address PHOTOMETER, care of the AMERICAN GAS-LIGHT JOURNAL, 254 Canal Street, New York.

**McKINNY & KELLY,**

MANUFACTURERS OF

**COAL-SCOOPS & COKE-BARROWS.**



FURMAN-St., Near Fulton Ferry, Brooklyn, N. Y.

## MISCELLANEOUS.

**WOODEN TRAYS FOR GAS-PURIFIERS.**—JOHN L. CHEESMAN, No. 147 Avenue C, near Tenth street, New-York, manufactures his Patent WOODEN TRAYS for GAS-PURIFIERS, *cut out of the solid wood*, superior to the ordinary iron plates, cheaper and more durable. The attention of Gas Companies and Engineers is called to this improvement, which has been adopted by the following Gas-Works:

Albany, N. Y., Manhattan, N. Y. City,
Chicago, Ill., Philadelphia, Penn.,
Williamsb'gh, N.Y., Worcester, Mass.

See Engravings on page 148, Vol II.

**TO GAS COMPANIES.**—We have a few lots of old Meters which have been sent to us for repairs, but as no notice of shipment was sent, are at a loss to know to whom they belong. Will our friends please write us, and give the number sent, the maker's name, &c., so that we can forward each lot to their proper owners.

CODE, HOPPER, & GRATZ,
Philadelphia, Pa.

## CLAY RETORTS.

**CLAY RETORTS.—J. K. BRICK** & Co.—Brooklyn Clay Retort and Fire-Brick Works, Van Dyke, near Van Brunt street, Brooklyn, N. Y.—Manufacturers of Clay Retorts, Fire Brick, Gas and Hot House Tiles, Arch, Furnace and Cupola Brick, Fire Cement, Mortar, &c.

J. K. B. & Co. would invite the attention of Gas Companies to the important fact, that the Clay Retorts manufactured at their Works can be set without Tiles, requiring to be supported only at the front and rear ends, thereby exposing the entire surface of the Retort to the direct action of the flame from the furnace.

The results of this mode of setting, are a Saving of Fuel, Tiles, Transportation of Materials, Labor and Space, thereby enabling Gas Companies to set Retorts of at least 50 per cent. greater capacity than those usually employed in the ordinary arches.

**ENGLISH FIRE BRICKS,** Rufford's Stourbridge Bricks, Stourbridge and Welsh Clay.
S. THOMPSON'S Neph., Imp'r,
45 Gold-st.

**ELLIMAN BROTHERS, 217** Pearl-St., New York, Commission Merchants, Importers of
BELGIAN FIRE-CLAY GAS RETORTS,
Dealers in Tiles, Arch-Bricks, Furnace-Doors,
Mouth-Pieces, Covers,
and all other Fittings, of the most approved patterns, for setting Clay Retorts.
Sabbaton's Patent Furnace-Doors, & Frames,
Floyd's Patent Malleable Iron Retort Covers,
McKenzie's Patent Gas-Exhausters,
made by Addison Smith. Compensator-Valves, &c.
Gas, Water, and Steam Tubes

**GAUTIER'S CLAY RETORTS.—** Fire and Arch Bricks, Gas-House Tiles, &c. Black Lead Crucibles for Steel Works and Brass Founders.
MANY, BALDWIN & MANY, 49 John-st., N. Y.

**PHILADELPHIA FIRE-BRICK** Works, corner of Vine and Twenty-third streets, Philadelphia.
JOHN NEWKUMET,
Manufacturer of all kinds of Fire-Brick, Gas-House Tiles, to suit all the different plans in use. Clay Retorts and Dentists' Muffles. Orders filled at short notice

**PATENT PYRO-CLAY GAS RETORTS.** THOMAS HOADLEY, Patentee, wishes to call the attention of Gas-Engineers to these
RETORTS,
as a very superior article.
References:—Gas-Light Works, Buffalo, N. Y.
" " Cleveland, O.
" " Chicago, Ill.
THOS. HOADLEY
Corner of Main and Mulberry Sts., Cleveland, O.

**ADDISON POTTER,**
Willington Quay,
Near Newcastle upon-Tyne, England,
Manufacturer of Clay Retorts, Fire Bricks, and every description of Fire Clay goods.

**COWEN'S PATENT FIRE-CLAY** Retorts.
JOSEPH COWEN & Co., Blaydon Burn, near Newcastle-on-Tyne, England, were the only parties to whom a Prize Medal was awarded at the Great Exhibition in London, of 1851, for "Gas Retorts and Other Objects in Fire Clay."
J. C. & Co. have been for many years the most extensive manufacturers of Fire Clay Retorts in the United Kingdom; and orders for Fire Clay Retorts of all shapes and dimensions, Fire Bricks, and every other article in Fire Clay, are promptly executed at their works as above.
COWEN'S GARESFIELD COAL AND COKE.
Coal and Coke office,
Quay Side, Newcastle on-Tyne.

**WILLIAM RYDER,** General Mineral and Metal Agent and Merchant, 4 Dean street, Newcastle-on-Tyne, England, is prepared to supply Gas Companies and others with every variety of appliance for the production and supply of Gas, including Gasometers, Retorts (metal and clay), Fire Bricks, Coals, Metal Mains, Tubes, in wrought iron, copper, brass, lead or composition, Meters, Taps, Fittings, &c., &c.; and from his extensive experience in this class of work, can guarantee every thing of the best description.

**JOHN ROGERSON & CO., New-**Castle on-Tyne, Middlesbro'-on-Tees, London, supply Gas Coal, Clay Retorts, Cast Iron Pipes and Retorts, Gasometers, &c. A partner of the above house being now in this city, will be glad to wait upon any gas company requiring supplies. Agents, MEAD & BELL,
17 William street, New York.

**CLIFF'S ENGLISH CLAY RETORTS**
Retort-Covers, Gas-Exhausters, Furnace Doors, Castings, Implements, Photometrical and Meter-Proving Apparatus.
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**SOUTHWARK FOUNDRY,**
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MERRICK & SONS, Engineers, manufacturers of every description of Gas Machinery.
Retorts, Bench Castings, Condensers, Washers, Scrubbers, Wet or Dry Lime Purifiers, Coke Wagons, Fire Tools, Wrought Iron Grate Bars, Gasholders, either Telescopic or Single, with Suspension Frames complete; Wrought Iron Roof Frames, for Iron or Slate; Stop Cocks, Exhausters, Steam Pumps, Boilers and Tanks, Steam or Hand Air Pumps for Proving Street Mains, Centre Seals, Governors, Wrought or Cast-Iron Lime Sieves for Purifiers, Purifier Hoisting Machines, &c., &c.
Address— MERRICK & SONS,
5th and Washington Streets, Philadelphia.

**BERGEN IRON WORKS.**
Established 1833.
R. A. BRICK, Manufacturer of Cast-Iron Water and Gas Pipes. Retorts, Pipes, &c., always on hand, Office 109, Leonard street, New York.

**OREGON FOUNDRY, Nos. 740,** 742, 744 Greenwich street, New York.
HERRING & FLOYD, proprietors, manufacture Gas Compensators of all sizes, Self-Acting Valves, Exhausters upon an improved plan, costing less than half those of English manufacture, also castings of every description for Gas and Water-Works.
Herring & Floyd offer for sale Sabbaton's Patent Screening Shovels for coke and coals, made of malleable iron, of all sizes; Sabbaton's Patent Improved Cast Iron Furnace Frame and Door, arranged to protect the iron work of the door and frame from direct contact with the fire; also Floyd's Patent Malleable Iron Retort Covers, only quarter of an inch thick, but of convex form, and of great strength, as is attested by certificates from several of the leading Gas-works in America. For engravings of all the above patents see American Gas Light Journal for October, 1859, pages 65 and 71.
Samples of the above castings can be seen at the Rooms of the American Gas-Light Journal.

**COLWELL & CO., Manufacturers** of Pig Iron and Cast Iron Gas and Water Pipes, No. 207 North Water street and 206 North Wharves, Philadelphia.
STEPHEN COLWELL, W. DWIGHT BELL,
THEO. TREWENDT, SAMUEL FULTON.

**TRANER & MERCER, 117** North Water street, and 124 North wharves, Philadelphia, Agents for the Mercer Foundry, and Elk Street Iron Works.
Cast Iron Street Mains; *Bends, Branches, Chemical Retorts, and all kinds of Castings for* Gas-works, either Coal or Rosin Works. Sheet Iron for Gasometers *cut and punched to order.* Boiler Iron *of all descriptions.* Russia Sheet Iron, Tin Plates, Block Tin, Copper, Pig Lead, Spelter, and Metals generally.

## GAS-COAL.

Cleveland, O., Nov. 28, 1860.

**THE PARTNERSHIP** heretofore existing under the name of Butts & Kendall, has expired by its own limitation with the close of the business of the present season.
F. BUTTS & CO.,
will hereafter have the control of the mines of the Sterling Coal and Mining Company,
and with such increased facilities, both as to improvements perfected at the mines and transportation of coal, as will enable them to continue the business on a more extensive scale than heretofore in *supplying Gas-Light Companies* in the different States, both East and West.
We are now prepared to contract for the delivery of the
Celebrated Sterling Coal
for the coming season; also, Pittsburg and other varieties of GAS-COALS.
You will therefore please to address, in relation to such contracts, F. BUTTS & CO.,
Post-Office Drawer, 74. Cleveland, Ohio.

**LIVERPOOL AND NEWCASTLE CANNEL & COAL,**
FOR
**Gas-Manufacturers and House Use.**
The careful shipment of the best qualities, of Cannel and Coal, at the lowest rates current at the time of engagement guaranteed.
T. W. PARMELE, Agt.,
No. 4 Irving Place, New-York.

**CANNEL AND ORREL GAS-**Coal.—The Subscribers are constantly receiving direct, from the celebrated mines of William H. Branker & Co., Newcastle, Eng., COAL of the very first quality for gas purposes, which they will sell direct from ship or from yard at the lowest market price; and we guarantee the coal to be equal if not superior to any other coal brought to this market.
CORNELIUS BAKER & SON,
61 Leonard st. and 652 Hudson st., New York.

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**INVENTORS' DEPOT & SALES** Room for Patent Rights.—Parties desirous of placing with us valuable Patents, for the sale of Rights, on commission, will here find the Head-Quarters for Inventors and their Patents, as well as for parties seeking investments in articles of undoubted merit. The public are invited to call, or send for Circulars. New articles coming in daily. BUTLER, HOSFORD & CO.,
No. 80 Broadway, N. Y., Proprietors of the Paragon Self-Generating Gas-Light

## IRON FOUNDRIES.

**MORRIS, TASKER & CO.,**
PASCAL IRON WORKS,
[ESTABLISHED 1821.]
Philadelphia, manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap Welded Boiler Flues,
Galvanized Wrought Iron Tubes,
ARTESIAN WELL PIPES,
of Wrought or Cast Iron, screwed together, flush inside and out; Gas-works Castings, Retorts and Bench Castings for Coal gas works; Cast Iron Street Mains, Bends, Branches, Drips, &c.
Gas and Steam Fitters' Tools, &c.
Stephen Morris, Chas. Wheeler,
Thomas S. Tasker, Stephen P. M. Tasker

**CAST IRON WATER, GAS,**
DRAIN, AND HEATER PIPES, &c.,
COLUMBIAN IRON WORKS,
Office, No. 46 NORTH SEVENTH STREET,
Below Arch street, Philadelphia.
THOS. M. ADAMS, Proprietor.

**TO GAS AND WATER COMPA-**nies:
The undersigned, Agent for Messrs. Thomas Edington & Sons, Phenix Foundry, Glasgow, Scotland, Is prepared to contract for all descriptions of Cast-iron Pipes of their manufacture.
About 6000 tons of these Pipes have lately been supplied to the Brooklyn Water-works, N. Y., and the Chief Engineer of the Works, A. P. Kirkwood, Esq., is ready to testify to their excellent quality.
ARCH'LD BAXTER, 28 Beaver st., N. Y.
*Sole Agent For the United States and Canada.*

**R. D. WOOD & CO.,**
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c.
Office, 400 Chestnut Street,
PHILADELPHIA.

**CAST-IRON PIPES.—EARL'S** IRON WORKS, Newark, N. J., 91, 93, 95, 97 and 99 Chestnut street. Branch Office, 21 Centre street, New York.
The subscriber continues to manufacture Superior Cast-Iron Gas and Water Pipes, Branches, Bends, Angles, Bevel Hubs, Reduces, Sleeves, Drip Syphons, Plugs, Caps, Retorts, Bench Castings, and Castings in general, Particular attention paid to all Castings connected with Gas Works. E. B. EARL.

**S. S. ASHCRAFT, Cincinnati, O.,** Manufacturer of Gas and Water-Pipes, with Branches of every description; Retorts for Gas and Oil Works; Gasholder Stands, Columns, &c.; Gas Purifiers, Condensers, and Gas Apparatus of all kinds; Foundry Work in general.
N. B.—A complete selection of Patterns on hand. Refer to any of the Gas Works in the Western and Southwestern States.
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John Jeffrey, Civil Engineer, Cincinnati.
Jacob Houghton, Engineer, Detroit.

**Warren Foundry & Machine CO.,**
Phillipsburgh. N. J.
Manufacturers of Cast Iron Pipes, from 2 to 48 inch diameter, all pipes from 3 inch to 48 inch cast vertically, and in dry sand, in lengths of 12 feet. 2 inch pipes in lengths of 7 feet. Special Castings of all descriptions furnished at short notice.
References.
Croton Aqueduct dept., N. Y.
Manhattan Gas Lt. Co., N. Y.
Brooklyn Water dept., N. Y.
Brooklyn Gas Lt. Co., N. Y.
Citizens' Gas Lt Co., Brooklyn, N. Y.
Samples of our pipe may be seen at the Rooms of the American Gas-Light Journal, N. Y.

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**DRAIN PIPES, ENGLISH and** AMERICAN.
Garnkirk Chimney Tops,
Plumbers' Materials.
Minton's Encaustic Tiles.
For Sale by
MILLER & COATES,
279 Pearl-st., New York.

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**WORTHINGTON'S STEAM** Pumps, extensively used by Gas-Light Companies, For Sale at greatly Reduced Prices.
Also, a new and highly successful Pump, driven by water pressure, requiring no attention or repairs, and the most economical water motor yet constructed.
Patent GATES, for Water and Steam stops.
HENRY R. WORTHINGTON,
61 Beekman street, N. Y.

**BURNELL'S PATENT ROTARY** Pump, adapted to all purposes of Pumping, from the well and cisterns to the steam fire-engine. The most simple, durable and efficient Pump yet made.
Principal sales depot at No. 23 Platt street, New York. SAMUEL B. LEACH.

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McKENZIE & O'HARA, 336 Fourth St.
ANTHONY KENDALL, 258 W. 36th St.
DAVIS B. LANE, 167 William St.
F. B. LANGWITH, 62 White St.
FRANCIS MATTHEWS, 47 Ann Street.
CHAS. F. MERRITT, 156 Seventh Ave.
WM. PALMER, 408 Eighth Ave.
GEORGE E. PARKER, 156 Seventh Ave.
DAVID REA, 48 Cortlandt St.

## GAS-ENGINEERS.

**C. N. TRUMP,** Gas-Works Engineer, No. 56, North Seventh-street, Phila. Agent for the Aubin Gas-Works.
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**SCAMMON'S GAS-APPARATUS** for private residences, factories, hotels and cities. See engravings of Rosin and Coal Gas-Works in American Gas-Light Journal for Dec. 1, 1860, pages 179 and 180.
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By the use of this Fluid, the WET GAS-METER of ordinary construction is rendered the most perfect and most reliable Gas Measuring Instrument ever offered to Gas Companies. In winter the Meter will continue to work equally well, *however exposed it may be*; and in summer, the level of the Fluid remaining constant without refilling, the measurement of the Gas will be both uniform and constant.

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See Engravings in AMERICAN GAS-LIGHT JOURNAL for July 1, 1860, page 280.

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See Engravings on page 163, Vol. II., of this JOURNAL.

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They are self-regulating, gas-purifying, indestructible, and most economical.

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Our Coal Oil will burn in all Kerosene Lamps.

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**FOR LIGHTING RAILROAD CARS AND STEAMBOATS WITH GAS.**
The whole process of Filling the Gas-Holders of a Railway Train, requires but Three Minutes.
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Every Machine is sold under a strict guarantee to operate according to representation, and no payment required until the fact is demonstrated by actual use.

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For Engravings, see AMERICAN GAS-LIGHT JOURNAL, for June, 1860, page 245.
☞ Responsible Agents wanted, with whom liberal arrangements will be made.

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For Engravings, see AMERICAN GAS-LIGHT JOURNAL for April, 1860, page 213.

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## GASOMETER RIVETS.

**PHILLIPS & ALLEN, Pennsylvania avenue, above 22d street, Philadelphia.**—GASOMETER RIVETS of all kinds.

## LIGHT-HOUSE BOARD.

**OFFICIAL.—NOTICE TO MARINERS.**—No. 104. Africa—Southeast Coast—Fixed White Light at mouth of Buffalo River.

TREASURY DEPARTMENT, Office of Light-House Board, Washington, Dec. 20, 1860.

Official information has been received at this Office that the Colonial Government at the Cape of Good Hope has given notice, that on and after the 25th day of August, 1860, a light would be exhibited from the light-house recently erected at the entrance of Buffalo River, East London, Southeast coast of Southern Africa.

The light is a *fixed white* light, elevated 45 feet above the level of high water, and visible in clear weather from a distance of about 11 miles.

The light house—painted in alternate bands of red and white—stands on the reef at the south side of the entrance of the river.

R. SEMMES, Secretary.

**NOTICE TO MARINERS.—No. 107.—Mediterranean.—Coast of Egypt.**—Fixed Light at Port Said.

TREASURY DEPARTMENT, OFFICE LIGHTHOUSE BOARD, WASHINGTON, Feb. 5, 1861.

Information has been received at this office that a light has recently been exhibited from a light-house at Port Said, twenty-nine miles Southeast of the Damietta mouth of the Nile, Coast of Egypt.

The light is a *fixed white* light, placed at an elevation of sixty-six feet above the mean level of the sea, and should be seen from the deck of a ship at a distance of nine miles in clear weather.

The illuminating apparatus is dioptric, or by lenses of the third order.

The lighthouse is a skeleton tower of wood, and stands in latitude 31° 16′ North, longitude 32° 19′ 30″ East from Greenwich.

The bearings are magnetic. Variation 6° 10′ West, in 1861. By order:
R. SEMMES, Secretary.

**NOTICE TO MARINERS.—No. 108.**—Lighthouse on Fi-gard Island, Esquimait Harbor, (Vancouver's Island.)

TREASURY DEPARTMENT, OFFICE LIGHTHOUSE BOARD, WASHINGTON, February 6, 1861.

Official information has been received at this office that a light is exhibited in the lighthouse recently erected on the summit of Fisgard island. The light is fixed and of the 4th order of Fresnel.

Shows bright when bearing from N. 2 W. to N. 60 W.

Shows red when bearing from N. 60 W. to S. 6 E.

It is elevated 70 feet above mean high water level, and may be seen in clear weather 10 miles.

The bearings are magnetic.

The structure consists of a keeper's dwelling of brick, with a tower of the same material white-washed, surmounted by an iron lantern painted red.

It is situated in latitude 48° 25′ 25″
longitude 123° 27′ 10″

By order. R. SEMMES, Secretary.

## MISCELLANEOUS.

**A LAMP CHIMNEY** that will not break! This invention possesses many advantages over the glass chimneys now used on Coal Oil Lamps. They do not break from the heat, falling, cleaning, or any ordinary usage.

THEY FIT ALL THE BURNERS NOW IN USE.

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**GAS THERMOMETERS FOR** ascertaining and regulating the temperature of the gas while passing through the purifiers into the station meters. For sale at the Rooms of the AMERICAN GAS-LIGHT JOURNAL.

**BURTIS' PATENT COMPENSATING COUNTERBALANCE FOR GASOMETERS.**—This Improvement consists in making the attachment to the Gas-Holder by counterweights in such a manner as to effectually prevent it from getting out of level so as to bind, and also to prevent any escape of Gas at Cup or Hydraulic seal where the Holder is on the Telescopic plan. Holders that work out of level, are thus evenly balanced, and prevented from binding or lodging against Tank-wall and falling down, thereby being rendered unfit for service. Where Holders or sections of Holders cannot be used on account of the above difficulties, this arrangement will remove them, and place the Holder in good working order; moreover, with this attachment, deep tanks are not necessary.

BURTIS' COUNTERBALANCE has been in use for three years at the Gas-Works, Chicago, Ill. Its resistance to high winds and snow-drifts, is alone sufficient to recommend its general adoption. For Engravings, see AMERICAN GAS-LIGHT JOURNAL for June, 1860, page 221. Address
P. T. BURTIS,
Engineer Gas-Works, Chicago, Ill.

## FINANCIAL.

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Cincinnati Gas Light & Coke Co.
Nashville Gas-Light Co.
Springfield Gas-Light Co.
Columbus Gas-Light Co.
Cleveland Gas-Light Co.
Covington and Newport Gas Light Co.
Memphis Gas-Light Co.
Indianapolis Gas-Light and Coke Co.
James H Caldwell, Esq., New Orleans.
John Jeffrey, Esq., Cincinnati.

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**W. & J. GRIFFITHS & CO.**—City Tube Works, Malleable Iron, and Brass Foundry, No. 27 North Seventh Street, Philadelphia. Manufacturers of Wrought Iron Pipe, Lap Welded Flues and Fittings: also Brass Work of all descriptions, for gas, steam and water. Particular attention given to heating buildings, &c.

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GLASS-ENAMELLED WROUGHT IRON TUBES,
PROSSER'S PATENT
LAP-WELDED IRON BOILER TUBES.
TUBES FOR ARTESIAN WELLS, CONVEYING STEAM OR WATER, SHAFTING, &C., SCREWED OR COUPLED TOGETHER, IN VARIOUS WAYS.
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